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MONTHLY REPORT

OF THE

DEPARTMENT OF AGRICULTURE

FOR

OCTOBER, 1874.



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MONTHLY REPORT.

REPORT OF CROP-RETURNS.

COTTON.

Our October returns show a slight improvement in the condition of the cotton-crop during September, but a marked decline since August 1.

The averages of the whole country for the past three months were as follows: August 92, September 70½, October 72. These reports date from the first of each month. During September North Carolina, South Carolina, and Alabama showed a decline; Mississippi and Louisiana remained stationary; Georgia, Florida, Texas, Arkansas, and Tennessee raised their averages.

September is generally the trying month upon this crop, witnessing its greatest reduction of condition. In 1873 the figures fell from 89 to 78½. This year the crisis came in August, the prevailing causes of decline being different from those of the last few years. Insect injuries, usually a prominent complaint among planters, are seldom heard of this year; the conditions of growth so unfavorable to the crop were likewise destructive of its insect enemies. But any lack of mischievous agency of this kind was more than compensated by the drought, extreme heat, hot withering winds, cool nights, and excessive rains which prevailed in different portions of the cotton area.

In regard to the ultimate yield of the cotton-crop we may, if we think best, amuse ourselves with a variety of speculations. The chronic anxiety to discount the future and appropriate its assets to present profit has become a serious public evil, leading as it does to reckless theorizing. The continuance of a specific class of conditions of growth is assumed without any apparent suspicion that Providence may possibly have some other purpose than the production of a cotton or a corn crop. Notwithstanding the known instability of these conditions, impatient statistics would figure up assured results. A fall favorable for the opening and picking of cotton would add a million of bales to the aggregate yield, even if the condition of the crop was very unsatisfactory. On the other hand, a very promising condition might be counterbalanced by early frosts, or by a bad picking season. Who is to forecast these elements of production?

If the cotton-crop could weather opposing influences, so as to maintain its average summer vitality during its whole season of growth, its annual yield would be immensely greater than it is. What is actually gathered is the residuum after depletion by various destructive influences, which, as above stated, generally operate most seriously in September. The following figures show the condition of the crop as averaged from the October returns of the last four years:

Cotton States.	1871.	1872.	1873.	1874.
North Carolina.....	80	90	88	85
South Carolina.....	75	86	80	82
Georgia.....	72	88	82	80
Florida.....	73	75	76	81
Alabama.....	75	82	78	75
Mississippi.....	76	78	75	74
Louisiana.....	73	72	72	62
Texas.....	70	85	80	70
Arkansas.....	82	75	83	55
Tennessee.....	94	90	90	56
Average of the ten States	75½	78	79	72

For reasons before stated, it would not be safe to deduce from the October condition any positive and dogmatic results in regard to the final yield of a crop ungathered and still liable to vicissitudes. In the monthly reports of the Department occasional conjectures have been hazarded as to the ultimate product from known data, and on the supposition that the conditions of growth and harvesting undergo no marked change. Sometimes alternative suppositions are made as to probable yield under varied classes of conditions. But in all such cases we have clearly intimated that nothing in the science or art of statistics enables us to forecast future contingencies which affect the final result. The public press has not always been careful to indicate the hypothetical character of such conjectures, and has in some cases represented the Department as pronouncing oracularly upon the yield of crops ungathered.

The Department has not yet hazarded a conjecture in regard to the ultimate yield of the crop of 1874. It differs in several important characteristics from preceding crops to an extent which suggests extra caution in theorizing. The annual crisis came earlier than usual, giving to injurious influences a wider scope of operation, while the recuperation of September was scarcely perceptible. Yet the months of October and November may develop important modifications in the final figures. An unfavorable closing season would reduce the aggregate yield to 3,000,000 bales or lower; the season must be remarkably favorable to raise the aggregate yield above 3,500,000 bales.

VIRGINIA.—*Greenville*: Cool weather injurious. *Sussex*: Five per cent. better than usual; no rust or worms. *Dinwiddie*: Seriously injured by drought; top crop mostly destroyed. *Southampton*: Below expectations.

NORTH CAROLINA.—*Wilson*: Greatly shortened by rust. *Franklin*: Suffered from cold and rust. *Anson*: Rust general and destructive; top crop lost; some farms will not average 125 pounds of seed-cotton per acre. *Cumberland*: Drought and rust. *Pasquotank*: Acreage reduced one-half; condition greatly depressed by cool weather. *Mecklenburgh*: Twenty per cent. short of August figures; rust, drought, and heat; an early frost will cut it short 20 per cent. more. *Robeson*: Sudden and unexpected depression since last report; rust or blight cut down the crop one-fourth. *Beaufort*: Serious decline since September report; weather unusually cool; rust especially destructive; picking weather unfavorable. *Columbus*: Very fine; no worms or other disaster. *Gaston*: Cool nights more injurious than drought. *Goldsborough*: Fields well manured with composts did well; the fertilizers used by many only stimulated the crop to premature growth, which it could not maintain when the stimulant was exhausted. *Bladen*: Cold nights have caused a destructive rusting of the crop. *Camden*: Cool weather has caused forms to shed very badly, reducing the crop fully 33 per cent. *Cleveland*: Most of the August bolls dropped off; the yield depends on the delay of frost. *Granville*: Shortened 10 per cent. by drought. *Greene*: No top crop. *Chowan*: Heavy rains and cool nights have caused the shedding of leaves and bolls. *Edgecombe*: Unusual amount of cotton open; early-matured bolls are yielding heavily. *Perquimans*: Still greater decline than last reported; loss 25 per cent.; rust. *Moore*: Not so badly rusted as it is farther south.

SOUTH CAROLINA.—*Union*: Prospect greatly declined since September 1; excessive rain and cool weather, with heavy dews, restrain the opening of the bolls; early frosts feared. *Beaufort*: Injured by rust and caterpillars. *Newberry*: Drought caused the

bolls to cease growing on sandy soils; all had opened by September 10. *Pamlico*: Cut down 20 per cent. by rust. *Polk*: Not so good as last year. *Stantley*: Opens slowly, and locks hang but sparely out of the bolls. *Marion*: Late storms have injured the crop; there will be very little late cotton. *Darlington*: Never more promising till the rains ceased, in August; since then it has shed all the fruit taken on since July; staple injured by late heavy rains beating it on the ground. *Georgetown*: Greatly injured by storms. *Marlborough*: Storms and bad picking weather; much open cotton beaten out. *Richland*: Caterpillars damaged some crops. *Orangeburgh*: Weed good, but fruitage scanty and nearly all open; no blooms for a month; rust very bad. *Lexington*: Not yet recovered from August droughts; yield light. *Laurens*: Two weeks of drought caused great shedding of forms and young bolls.

GEORGIA.—*Pierce*: Drought and rust. *Schley*: Drought in September caused still further decline; some worms, but too late to do any harm. *Dooly*: Ruined by drought from August 2 to September 22. *Douglas*: Never recovered from the August drought; opening very fast; the drying of wild vegetation indicates an early frost. *Muscogee*: Continued drought, with rust. *Catoosa*: Squares dropping. *De Kalb*: Drought. *Early*: Unprecedented drought of September; worms injured the top crop. *Elbert*: Rust. *Marion*: Uplands not so good as last year; bottom crops better. *Sumter*: Drought and caterpillars; very poor prospect. *Henry*: Rust and August drought. *Banks*: Good picking weather; but little middle crop. *Montgomery*: Poor stand and injured by rust. *Spalding*: Quality middling, and good middling. *Harris*: Opening very rapidly; occasional rains during the drought prevented injurious shedding. *Terrell*: Drought through September broken by a few showers; crop a third less than last year; good picking season. *Jackson*: Weed small and damaged by late storms; blooms scarce. *Laurens*: Cut down half by drought; picking season never better. *Lincoln*: Rust on gray lands. *Oglethorpe*: No top crop; middle crop short; drought. *Walton*: Coming in slowly; picking retarded by storms, which have also injured the crop; 66 bales came in during September against 325 bales last year. *Brooks*: Good gathering season. *Macon*: Picking forward; drought in August made the crop open prematurely. *Morgan*: Injured by heat of August; opening fast; bolls small; lint short and light; later plantings did not suffer so much; bolls of better size; some rot among bottom bolls; receipts to date only half of last year's. *Upson*: Still further decline. *Jefferson*: Rust. *Baldwin*: Coming to market freely; staple of excellent quality; yield shortened by drought. *Madison*: Rust; two weeks late. *Carroll*: All the August cotton shed through drought; no rain for six weeks. *Twiggs*: Will be all gathered by November 1. *Wilkes*: Opening finely; very unequal in condition. *Pulaski*: Acreage decreased 20 per cent.; nearly all open, and will be picked within thirty days; the prospective yield has declined 25 per cent., but the staple remaining is of excellent quality on account of the absence of rain and storms to blow it out and stain it.

FLORIDA.—*Columbia*: Shortened 10 per cent. by rust within thirty days; unusual drought. *Wakulla*: Hot dry weather killed the caterpillars, but also injured the crop; bolls mostly open. *Jackson*: Forward but short; mostly secured in good order. *Leon*: Injurious drought in August and September. *Jefferson*: Weather fine for opening and picking. The rapidity with which the crop is marketed may induce people to think the crop is larger than it is. *Madison*: Some very fine crops, but the general condition is very unsatisfactory. *Gadsden*: Many fields denuded by the third brood of caterpillars; crop injured also by drought; many young bolls perished and others are yielding but scantily. *Lery*: Rust.

ALABAMA.—*Dale*: No rain for two months; squares and grown bolls falling; half crop. *Greene*: Drought. *Russell*: Top crop shedding. *Mobile*: Drought; squares falling. *Coffee*: Some worms, but the drought was too much for them. *Conceh*: Prospect improved. *Montgomery*: Nearly average in spite of drought. *Pike*: No rain for eleven weeks; upland cotton all open. *Shelby*: Drought. *Calvert*: More than was expected, but staple not so good; will be picked early. *Dallas*: Shortened a fourth by protracted drought. *De Kalb*: Bolls opening well, but smaller than last year and lint shorter. *Marshall*: Will yield not over half average; staple short and inferior; slight frost September 28, but no damage. *Calhoun*: Poorly fruited; drought and late stand. *Choctaw*: Shortened by long drought. *Hale*: Ruined by drought and caterpillars. *Jackson*: Drought and rust. *Macon*: Drought caused the crop to shed badly and to open prematurely. *Lawrence*: Half crop. *Autauga*: Drought for three months; no top crop. *Henry*: Drought through August and September. *Clarke*: Shortened one-half by drought and caterpillars. *Limestone*: Very poor; not over a bale for six acres. *Franklin*: Poor crop. *Monroe*: Drought since July 20. *Winston*: Top bolls falling; crop opening freely.

MISSISSIPPI.—*Lauderdale*: Half average; in some places no rain has fallen since June. *Grenada*: Drought; bolls opening immaturity; lint and seed frequently very imperfect. *Yalabusha*: Not over two-thirds average. *Lee*: Drying up; almost the last boll is open; no rain of any consequence since May 3. *Wayne*: Small crop. *Attala*: Cut off a third by drought. *Kemper*: Drought cut off both the crop and the worms. *Norubee*: Black and slough lands will double last year's yield; sandy upland not so good; good picking season. *Rankin*: Crop made; rains too late to save it; half picked

already. *Tishemingo*: Opened earlier than last year; quality inferior; good picking time. *Amite*: Injured by drought; good picking season. *Hancock*: Suffered severely from worms; heretofore it was thought that worms would not injure cotton on the sea-shore, but this hope has proved fallacious. *Winston*: Drought. *Lowndes*: Worms have stripped the leaves; light lands suffered from drought and heat. *Carroll*: Extreme heat caused forms to drop, materially reducing the yield. *Lincoln*: Opening rapidly; picking well advanced. *Jefferson*: Seed sprouted by heavy rains following the late drought. *Clark*: Very little rain since July 1. *Adams*: Good picking weather.

LOUISIANA.—*Iberia*: Caterpillars have done but little damage. *East Baton Rouge*: Caterpillars in large numbers; uplands only half average. *Iberia*: Worms appeared in September, too late for damage. *East Feliciana*: Cut down one-half since August 1 by drought and heat; staple inferior and seed immature. *Caddo*: Damaged 10 per cent. by September rains; picking slow; crop gathered after September 5 will be inferior in quality. *Claiborne*: Heavy and driving rains in September injured the quality of cotton to the extent of 2 cents per pound. *Franklin*: Greatly damaged by recent driving rains. *Rapides*: Staple good, but the crop only half average. *Madison*: Fell off 10 per cent. in September through drought. *Concordia*: Opening slowly; but little yet shipped. *Union*: Quality good, but yield short. *Cameron*: Worms in many places; injury serious. *Jackson*: Picking going forward rapidly, but staple inferior owing to premature opening of bolls brought on by excessive heat; top crop growing rapidly, with abundant forms and bolls; this, if the frost holds off, will materially increase the yield.

TEXAS.—*Bosque*: Long drought; half a crop. *Dallas*: A third of a crop; staple inferior to last year. *Ilano*: Unprecedented drought. *Palo Pinto*: Drought. *Red River*: Drought. *Washington*: Condition improved; first picking of superior quality; the quality will be 10 or 12 per cent. in advance of last year. *Austin*: Caterpillars destroyed the top crop; late heavy rains caused a serious loss by washing and blowing out the seeds; much inferior cotton. *Collin*: Excessive drought and heat caused cotton to throw off its forms. *Falls*: Injured by heavy rains in September. *Waller*: Continued rains caused the seed to sprout in the boll; condition still further reduced. *Bell*: Cut short by drought. *Bandera*: Greatly damaged by late rains; top crop destroyed by worms; a bale to 3 or 4 acres. *Cherokee*: Injured by wet, cloudy weather. *Fannin*: Injured by recent rains; seeds, in some cases, have sprouted in the boll. *Harrison*: Injured by drought. *Henderson*: No rain in September; crop very short. *Kaufman*: Half crop; drought. *Medina*: Drought; rain comes too late to save it. *Hood*: Fallen off beyond precedent; seed small and light; staple short. *Navarro*: Two months drought cut down the crop fearfully. *San Jacinto*: Half short and a month late. *Williamson*: Slightly improved by late rains. *Harris*: Excessive rains have sprouted the seed in the bolls; picking brisk. *Cooke*: Short; no rain from June 15 to September 7; August extremely hot. *Freestone*: Severe drought; crop shortened; *Wharton*: Prospect of a heavy yield cut down by excessive rains. *Montgomery*: Seed sprouted in the bolls from excessive rains. *Rusk*: Has taken a second growth, and is now filled with small bolls and blooms, few of which can mature. *Matagorda*: The whole coast visited by heavy rains after a long drought; very bad for cotton. *Lavaca*: Excessive rains and heavy storms have beaten out the cotton, reducing the condition 20 per cent. *Caldwell*: About 4 acres to a bale; excessive rains and floods. *Uvalde*: Badly blown down. *Comanche*: Failure through drought. *Lamar*: Good picking weather; staple good, rich cream-color, and of medium length. *Fayette*: Shortened by drought and injured by subsequent storms; will average a half bale per acre on the bottoms and a bale to 4 or 5 acres on the uplands. *Travis*: Drought from the middle of July to the middle of September, causing the plants to shed forms and bolls very freely. *Upshur*: Early crop matured before the drought; fields clean. *Victoria*: Badly blown out by a storm of fifty-six hours, commencing September 5. *Karnes*: Damaged by late heavy rains; will average about a bale to 4 acres. *Kendall*: Seriously injured by fourteen days of continuous rain. *Robertson*: Rain causing considerable seed to sprout in the boll. *Blanco*: Injured by late rains.

ARKANSAS.—*Pulaski*: Premature opening; picking costs 75 cents per 100 pounds, hands boarding themselves. *Boone*: Drought. *Crawford*: Opening better than usual. *Dallas*: Short. *Franklin*: Cut off one-fourth by drought; late heavy rains have caused it to stain and rot in the boll. The little cotton there is near the ground, and the continued rainy and cloudy weather has greatly damaged it. *Garland*: Almost a failure. *Prairie*: Picked as rapidly as possible and thrown on the market. *Yell*: Almost a failure; drought, with scorching winds in the summer. *Craighead*: Early frosts would finish what is left of the crop. *Cross*: A great failure. *Hempstead*: In many parts of the county there was no rain from May 10 to September 16; intense heat. *Onachita*: Opening rapidly; shortest crop ever raised here; poor quality, short lint; bad color. *Monroe*: Half crop. *Stone*: Twelve weeks' drought. *Independence*: Nearly all open; picking will be completed forty days earlier than usual.

TENNESSEE.—*Gibson*: Almost a failure; quality inferior. *Henry*: Short; drought. *Hardin*: Seriously damaged by drought. *Giles*: Injured by fall rains; not over 400 pounds seed-cotton per acre. *Obion*: Half a crop. *Lauderdale*: Half a crop.

WHEAT.

Our October returns indicate a yield of wheat both larger in quantity and better in quality than last year, nearly, if not quite, equaling the splendid crop of the census year, which aggregated 287,745,626 bushels.

The New England States, (Rhode Island not growing enough to report,) have reached nearly a million of bushels, Maine increasing 33 per cent.; New Hampshire, 3 per cent.; Vermont, 5 per cent.; Massachusetts, 13 per cent.; Connecticut equaling last year's crop. In quality Massachusetts is fully equal to last year, and all the others above, the improvement in Maine being 12 per cent.

The Middle States have increased their aggregate yield, the crop, compared with last year, ranging from 100 per cent. in Delaware to 116 per cent. in New York. The average quality is considerably better than last year.

Of the South Atlantic States, Maryland falls 1 per cent. and Virginia 6 per cent. below last year, and both are somewhat inferior in quality. On the other hand South Carolina is fully equal to last year; North Carolina increases 3 per cent. and Georgia 21 per cent. The last three States also show improved quality.

Of the Gulf States, the crops of Florida and Louisiana are too inconsiderable for notice. Alabama enlarges her yield 23 per cent. and improves its quality 29 per cent. In Mississippi the crop is 2 per cent. larger, but 9 per cent. lower in quality. Texas is about 6 per cent. lower than last year in both quantity and quality.

Of the four inland Southern States, Arkansas raises her product 50 per cent.; Tennessee, 29 per cent.; West Virginia, 23 per cent.; Kentucky declines 5 per cent. All these States have improved their quality; Tennessee, 17 per cent. Their aggregate yield will be about a third greater than that of the census year.

North of the Ohio River the ravages of insects and atmospheric injuries have reduced the crop of Wisconsin 35 per cent. below last year, a loss which more than counterbalances the increase in the other States of this section. Illinois equals last year's yield; Indiana increases hers 9 per cent.; Ohio, 16 per cent.; Michigan, 22 per cent. All present a considerably improved quality except Wisconsin. This section will produce about a million bushels less than last year.

West of the Mississippi River, Minnesota decreases her yield 16 per cent.; Iowa, 2 per cent.; Kansas, 5 per cent.; Missouri increases 29 per cent., and Nebraska 1 per cent. The quality is depreciated from 2 to 5 per cent. in all except Missouri, which has improved 27 per cent. Atmospheric and insect injuries were here more generally diffused. The aggregate yield of these States will be nearly 2,000,000 bushels less than last year.

On the Pacific coast, California increases her yield 10 per cent. and Oregon 21 per cent. Oregon equals last year in quality, and California improves 3 per cent. The increased yield of this section more than compensates for the decline of the northwest.

There is a smaller amount than last year of old wheat remaining on hand in all the States except Connecticut, Delaware, South Carolina, Alabama, Arkansas, and California. The greatest exhaustion of old stocks is found in Wisconsin, Nebraska, Kansas, Michigan, Tennessee, and Virginia.

MAINE.—*Oxford*: Best crop in ten years.

VERMONT.—*Orleans*: Generally well secured, though some pieces lodged; others troubled by the midge, here called the weevil. *Caledonia*: Good.

MASSACHUSETTS.—*Berkshire*: Did not thrash out as well as it promised at harvesting. NEW YORK.—*Genesee*: Great increase on last year. *Wyoming*: Tappahannock for two years has done well; Touzelle not suited to the climate. *Franklin*: Best for many years.

PENNSYLVANIA.—*Clearfield*: Prematurely ripened by drought and extreme heat. *Northampton*: Thrashing out 7 bushels per 100 sheaves; a good yield; grain full and of good weight. *Lycoming*: Shortened by drought, but of good quality. *Berks*: Excellent quality.

MARYLAND.—*Montgomery*: Not yielding so well as last year. *Baltimore*: Slightly below last year; good quality; Fultz the most satisfactory.

VIRGINIA.—*Greenville*: Rust. *Gloucester*: Much rust on blades and some on stalks; good culture and free manuring make no difference. *Dinwiddie*: Yield only four-fold and of poor quality; smut and cockle. *Essex*: Fultz did best, much being sown. *King George*: Not so good quality as last year. *Albemarle*: Chinchies. *Fluvanna*: Grain light in proportion to straw. *Henrico*: Fine promise ruined by subsequent drought and heat. *Louisa*: Quality fair, but yield disappointing. *King William*: Fultz from the Department surpassed every other variety.

NORTH CAROLINA.—*Haywood*: Very good, especially Fultz, from seed furnished by the Department. One farmer raised $2\frac{1}{2}$ bushels from a quart of seed; another thrashed 3 bushels from seven dozen sheaves. *Buncombe*: Best crop, in quantity and quality, for many years.

TEXAS.—*Wood*: Crop larger than last year from increased acreage; average yield not so great. *Dallas*: Yield 15 bushels per acre; increased acreage will bring the crop up to last year. *Kaufman*: Mediterranean wheat from the Department averaged 20 bushels per acre, weighing 65 pounds per bushel.

ARKANSAS.—*Independence*: Better wheat and more of it than any year since the war, but less than three per cent. of the crop acreage in this grain. Supply of bread will be very short.

TENNESSEE.—*Blount*: Wheat the only crop that reached an average. *Carter*: Touzelle failed; Tappahannock did well. *Grainger*: Large breadth sown, but did not all fill perfectly; condition good. *Knox*: Black weevil injured the crop. *Grundy*: At our agricultural fair Tappahannock wheat, from seed originally furnished by the Department, took the first premiums. *Serier*: Touzelle from the Department did no good. Fultz very fine yields; better than any other except the Tappahannock. A farmer, from two quarts of Tappahannock, made $3\frac{1}{2}$ bushels. *Robertson*: Tappahannock did well. *Washington*: Not thrashing out as well as was expected. *Obion*: good. *Lauderdale*: Better than for years.

WEST VIRGINIA.—*Mercer*: Good quality. *Monongalia*: Generally thrashed; turns out largely, and weighs 64 pounds to the bushel. *Tyler*: Crop better than for several years. *Payette*: Thrashed out better than expected, and the quality good. *Monroe*: Excellent and heavy yield.

KENTUCKY.—*Graves*: Below average in quality. *Anderson*: Affected by the drought and the midge. The Fultz wheat is anxiously sought after for seed.

OHIO.—*Hancock*: Of very fine quality. *Noble*: The best for years. *Athens*: Excellent crop. The Fultz, hardy and prolific; has proved a valuable acquisition.

MICHIGAN.—*Branch*: The best crop ever raised in the county. *Oakland*: Harvested in very good condition and has yielded largely. *Charlevoix*: Winter-wheat is considerably shrunk, owing to the dry weather in July. Spring-wheat is plump and good.

INDIANA.—*Harrison*: Quality good. *Tippecanoe*: The crop is thrashed and proves a full average in quantity and quality. *Whitley*: About two-thirds of a crop; good in quality.

ILLINOIS.—*Moultrie*: Almost a failure, and quality bad. *Mason*: Thrashing out well in quantity and quality. *Douglas*: In some localities seriously damaged by chinchies. *Lee*: About all thrashed; quality good. *Madison*: The average per acre is 75, but the area is at least 10 per cent. larger than in 1873.

WISCONSIN.—*Door*: Upon thrashing it proves very light; not more than three-fourths of a crop. *Richland*: Nearly all shrunk some. *Saint Croix*: Injured in stack by wet weather.

MINNESOTA.—*Sibley*: Spoiled by the locusts and hot weather. *Blue Earth*: Red Osaka not over 5 per cent. of an average crop owing to rust, and a large surface of it sown; this greatly reduces the general average. *Nicollet*: Reported by thrashers as averaging about 11 bushels per acre. *Wright*: Mostly number 2. *Goodhue*: Shortened by drought. *Houston*: Considerably injured in stack by heavy rains. *Rock*: Equal to last year's crop in quantity and quality, but suffered from grasshoppers both years. *Waseca*: Never better.

IOWA.—*Cass*: Very considerably damaged in the stack by long continued rains. *Woodbury*: Being injured in the stack by excessive rain. No old wheat in the county to speak of. *Madison*: More rain fell in September than in the same month for ten years past, and a large amount of wheat in stack is damaged. *Chickasaw*: From the report of thrashers the yield is better than was anticipated. *Cherokee*: Some damaged

both in stack and shock by excessive rains. *Harrison* : The crop was destroyed except in spots. *Howard* : That thrashed early is in good order; but the recent rains have damaged that in stack. *Mitchell* : Very much injured in the stack by heavy rains. *Audubon* : Badly damaged by rains since harvest. *Henry* : Damaged in stack by heavy rains.

MISSOURI.—*Caldwell* : Has not yielded in thrashing as well as was expected. *Greene* : The largest and finest crop ever raised in the county. *Stone* : The yield per acre is fully 100 per cent. above last year. The Fultz and Tappahannock yielded splendidly, and the quality is extra good. The Touzelle did nothing; too late for this climate. *Jasper* : Thrashing out better than expected, 30 bushels per acre being a common average. *Pemiscot* : Not enough for home consumption; drought.

KANSAS.—*Jefferson* : Raised no number 1; dry weather and chinchies shrunk the berry. *Republic* : Winter-wheat yields 400 per cent. more than last year, with a corresponding increase in quality. Wheat in the stack much injured by the September rains. *Montgomery* : The product last year 200,000 bushels; this year from 300,000 to 350,000; quality good, averaging 62 pounds to the bushel. Tappahannock has excelled all other varieties in quantity and quality, and was less damaged by the chinchies. *Labette* : Product, compared with last year, 135. We claim to be the banner county in the State in the raising of wheat. *Nemaha* : Light, and much of it lost in screenings. *Jackson* : Light, but good berry. *Ottawa* : The acreage was unusually large, but the yield reduced by drought, and the grain materially injured in stack by rains. *Woodson* : Mostly destroyed by the winter and the chinchies.

NEBRASKA.—*Antelope* : With twice last year's acreage we only get last year's total of wheat, pinched by hot weather and cut by "the red-legs." *Dixon* : Has suffered greatly in the shock from wet weather.

CALIFORNIA.—*Del Norte* : Excellent. *Sonoma* : All thrashed; a very satisfactory yield, and a very superior quality.

COLORADO.—*Rio Grande* : Has done better than ever before, yielding 62½ bushels per acre on a three-acre field. *Morgan* : Injured by rust. *San Pete* : Turned out better than was expected; quality good. *Box Elder* : A shrinkage from rust. *Salt Lake* : Unprecedented rains caused rust and shrinkage.

RYE.

The New England States equal or improve last year's crop, both in quantity and quality, Maine showing an increased product of 26 per cent. The Middle States are a little below last year in quantity, and a little above in quality. The South Atlantic States show a small reduction in both. The reduction in the Gulf States is still more marked, on account of the low figures of Texas, which reports but two-thirds of last year's crop. The inland Southern States, as a whole, show an increased yield and an improved quality. The States north of the Ohio show a slight increase in quantity and quality. The States west of the Mississippi and on the Pacific coast are about equal to last year in both quantity and quality.

OATS.

The product of the oat-crop in the New England States shows, on the whole, a considerable increase. Maine increases her yield 27 per cent.; New Hampshire, 3 per cent.; Vermont, 16 per cent.; Massachusetts, 13 per cent. On the other hand, Rhode Island decreases her small crop 18 per cent.; Connecticut, 4 per cent. The quality, compared with last year, ranges from 100 in Rhode Island to 107 in Maine.

Pennsylvania reduces her crop 18 per cent. Complaints of drought in some quarters and of excess of rain in others, indicate the leading causes of this decline. The other Middle States, however, show an enlargement; New York, 7 per cent.; New Jersey, 1 per cent.; Delaware, 10 per cent. The quality on the whole is considerably depreciated.

Along the South Atlantic and Gulf coasts both quantity and quality show a decline, except that the yield of Georgia is 8 per cent. and Alabama 5 per cent. larger than last year. In all other sections of the Union, except the Pacific coast, both quantity and quality have declined.

the greatest loss being in Kentucky, which reports only 43 per cent. of last year's crop. Tennessee averages 46 per cent.; Louisiana and West Virginia, 61 per cent.; Arkansas, 62 per cent.; Kansas, 68 per cent. On the Pacific coast the quality is equal to last year. California enlarges her yield 8 per cent. Oregon declines 1 per cent.

MAINE.—*Oxford*: Poorly filled; quality inferior. *Androscoggin*: Heavy yield.

VERMONT.—*Orleans*: Good, though somewhat rusted. *Caledonia*: Seldom better.

MASSACHUSETTS.—*Berkshire*: Heavy strawed, and well headed.

NEW YORK.—*Franklin*: Some rust, but crop better than last year.

PENNSYLVANIA.—*Clearfield*: Lightest crop for years. *Elk*: Badly rusted. *Columbia*: Drought. *McKean*: Season too wet.

VIRGINIA.—*Caroline*: Almost a failure. *Greenville*: Rust. *Dinwiddie*: Rust. *Essex*: Worse than last year's bad crop. *Clarke*: Almost a complete failure. *Highland*: Latter part of the season brought the crop to an average. *Albemarle*: Chinchies. *Henrico*: Winter oats good; spring poor. *Louisa*: Chinchies. *King and Queen*: Very good.

NORTH CAROLINA.—*Buncombe*: Poor in quantity and quality.

SOUTH CAROLINA.—*Chesterfield*: Spring oats a failure; winter very good.

MISSISSIPPI.—*Lincoln*: Increased acreage, but not an increased yield per acre.

TEXAS.—*Austin*: Red oats (rust-proof) the only variety fit to grow here. *Cooke*: Somerset oats too tall and too late for the climate. *Uvalde*: Somerset oats a success. *Upshur*: Better crop than last year, especially rust-proof.

TENNESSEE.—*Carter*: Somerset from the Department yielded exceedingly well. *Lincoln*: Shortened by drought. *Grundy*: Hopetown oats, from seeds originally furnished by the Department, took the premiums at our county fair. *Trousdale*: An entire failure. *Washington*: Winter oats a fine crop; spring oats poor.

WEST VIRGINIA.—*Grant*: A failure. *Braxton*: Far below last year in quantity and quality. *Mercer*: Inferior in quality, greatly damaged by drought. *Monroe*: Very poor; not over one-third of a crop.

KENTUCKY.—*Oldham*: A failure, owing to drought. *Clarke*: Seriously injured by drought. *Gallatin*: A very short crop, owing to excessive drought. *Lincoln*: Almost a failure, owing to drought. *Graves*: Almost an entire failure; drought. *Anderson*: Almost a complete failure; drought.

OHIO.—*Medina*: Shortened by drought. *Morrow*: Early sown gave a fair average. Late sown did not give half a crop and were of poor quality. *Vinton*: Nearly ruined by drought. *Athens*: Almost an entire failure; drought. *Delaware*: Early varieties very good; late affected by drought.

MICHIGAN.—*Lake*: Injured by drought. *Branch*: Light from drought. *Montcalm*: Injured by dry weather.

ILLINOIS.—*Moultrie*: Poor. *Douglas*: Seriously damaged by chinchies. *Lee*: Not good in quantity or quality.

WISCONSIN.—*Juneau*: Poor.

MINNESOTA.—*Sibley*: Spoiled by the locusts. *Blue Earth*: Greatly injured by drought. *Wright*: Very light. *Mower*: Very good. *Goodhue*: Shortened by drought. *Rock*: Suffered from grasshoppers much more than last year. *Waseca*: Never better; every farmer has an abundant crop.

IOWA.—*Chickasaw*: A fine crop. *Decatur*: A very large crop. Those thrashed all right, but those in stack (probably one-third) nearly all lost by excessive rains. *Howard*: No complaint of yield or quality, and the price better than for years.

MISSOURI.—*Caldwell*: Secured in the best condition, but a little light in weight. *Greene*: Injured by drought. *Laclede*: Not half a crop—drought. *Platte*: Not more than half a crop.

KANSAS.—*Jefferson*: Not well filled; drought. *Montgomery*: Not over half a crop; drought and chinchies. *Pawnee*: Matured before the drought and grasshoppers came. *Labette*: Shortened by drought. *Jackson*: Rather light.

NEBRASKA.—*Antelope*: Badly used by the "red-legs."

CALIFORNIA.—*Del Norte*: Excellent.

BARLEY.

In the New England States, except Rhode Island and New York, the product of the barley-crop is greater than last year, the excess in Vermont being 16 per cent. In all these States the quality is equal to last year or superior. Pennsylvania declines 2 per cent. in quantity and 4 per cent. in quality. Georgia and Texas are nearly equal to last year in both quantity and quality. Tennessee equals its previous crop, and Kentucky exceeds by 18 per cent., the quality in both being superior.

North of the Ohio River the crop has declined both in quality and quantity. West of the Mississippi River, Iowa, Kansas, and Nebraska have increased, while Minnesota and Missouri have decreased. Missouri and Kansas have declined in quality; Minnesota, Iowa, and Nebraska have improved. On the Pacific coast the crop is equal to last year, except a decline of 3 per cent. in quality in California.

BUCKWHEAT.

The condition of the buckwheat-crop is above average in Vermont, 103; Connecticut, 108; North Carolina, 101; Tennessee, 103, and Minnesota, 102; it is full average in Delaware, Mississippi, Indiana, Wisconsin, and Oregon; in all the other States it is below average. In the Middle and Southern States it has been injured by drought, and in the Northwest by insects. Several counties in different parts of the country report extra yields. The Silver-hull from the Department is showing good results.

CORN.

Returns indicate an average condition, throughout the country, of 86. This is an improvement of 3 per cent. since the 1st of September, and 2 per cent. above the average for October 1, 1873. This general average is made up from returns of average condition for each county in the several States, which indicate the promised rate of yield and quality, but not the quantity of the crop, the acreage not being taken into account. The returns for acreage in July showed a breadth planted fully 2,000,000 acres greater than in 1873. The highest per cent. of increase was in the South, but the greatest absolute increase was in the West, while New England indicated a slight decrease. The enlarged acreage and the slightly improved condition give promise of an increase in product over last year of something over 60,000,000 bushels, but the returns for November, which report, not condition, but product, compared with last year, may considerably modify this estimate. Among the greater corn-producing States, lowest in condition, are Kansas, 51; Missouri, 59; Tennessee, 70; Illinois, 78; Michigan, 84; Wisconsin, 85; Kentucky, 86. The highest among these States are Indiana, 102; Ohio, 99; Pennsylvania, 97; Iowa, 96; Texas, 95; New York, 90. All of the above States reported, in July, an increase in acreage, except Kentucky, 97; Tennessee, 98, and New York, 100. Texas reported an increase of 16 per cent.; Kansas, 14; Missouri, 10; Iowa, 9; Indiana, 8; Illinois, 4; Ohio, 2. Ranging highest in average condition among the States producing a less amount, are California, 109; South Carolina, 108; Rhode Island and Connecticut, 106; Minnesota, 104; Georgia, 103; North Carolina and Florida, 102. Lowest, Arkansas, 53; Nebraska, 63; New Jersey and Louisiana, 69; Maine, 78; Delaware, 85; Vermont and Maryland, 88. Between these extremes are Oregon, 100; New Hampshire, 96; Virginia, 93; West Virginia, 95; Alabama, 94; Mississippi, 90; and Massachusetts, 89.

Up to the first of November frosts had done very little damage. The principal cause of low condition has been droughts prevailing to an almost unprecedented extent at the most unpropitious seasons for corn. To this must be added the very great ravages by grasshoppers in Kansas and Nebraska, and in parts of Missouri, Iowa, and Minnesota; also extensive injuries by chinchies in these States, except Iowa, and in Ohio, Indiana, and Illinois, and to a less extent in Wisconsin. In California and Colorado Territory ravages by grasshoppers are also noted. In-

teresting particulars of local variations in condition and their causes will be found in the notes from correspondents which follow :

MAINE.—*Oxford* : Growth good ; two or three weeks late. *Sagadahoc* : Late. *Androscoggin* : Very backward and light.

NEW HAMPSHIRE.—*Carroll* : Remarkably green and backward.

VERMONT.—*Orleans* : Crop good and ripening well. *Washington* : Harvested in good order ; no frost yet. *Rutland* : Severe drought for two months.

MASSACHUSETTS.—*Berkshire* : Injured by the early cold season.

CONNECTICUT.—*New London* : Very promising.

NEW YORK.—*Columbia* : Very light. *Queens* : Shortened by drought ; not generally well filled. *Tioga* : Recent rains. *Genesee* : Prematurely ripened by drought in August and September. *Sullivan* : Light but good. *Franklin* : Late and small. *Hudson* : Injured by drought.

NEW JERSEY.—*Gloucester* : Shortened by extreme drought.

PENNSYLVANIA.—*Northampton* : Planted on old corn-stubble without manure ; crops are very poor. *Clearfield* : Some good pieces, but late planting causes much soft corn. *Indiana* : Sound and safe from frost. *Columbia* : Suffered from drought. *Westmoreland* : Corn still needs fine weather for ripening. *Erie* : Has done well. *Armstrong* : Good season. *Lycoming* : Average in quantity and quality. *Beaver* : Damaged by drought. *Butler* : Injured and retarded by cool nights.

DELAWARE.—*Kent* : Shortened by late drought.

MARYLAND.—*Dorchester* : Shortened 30 per cent. by drought ; fodder good. *Baltimore* : Average, and of good quality.

VIRGINIA.—*Greenville* : Injured by worms. *Lunenburg* : Shortest crop ever made. *Madison* : Maturing and very sound ; upland poor ; bottoms good where well worked. *Middlesex* : Injured by bud-worms ; season good. *Gloucester* : Injured by drought and worms. *Shenandoah* : Drought. *Stafford* : Half crop. *Charles City* : Still green. *Dinwiddie* : Yield large but of inferior quality ; late planting, poor culture, and drought. Fodder well secured. *Essex* : Best crop for five years in spite of bad stand. *King George* : Too dry and cold. *Nelson* : Good, but late. *Clarke* : Some improvement. *Elizabeth City* : Improved of late. *Highland* : Unusually good. *Loudoun* : Improved by late rains ; a fine prospect. *Matthews* : Fine quality, shortened by bud-worms. *Mecklenburgh* : Drought and storms. *Nansemond* : A late cold season gave a poor stand, but a fine summer has greatly improved the crop. *Pulaski* : Nearly out of danger. *Albemarle* : Late rains have raised the crops to average. *Fluvanna* : Tolerable. *Louisa* : Partial drought. *King William* : Best crop for years. *Orange* : Benefited by late rains ; chinchies. *King and Queen* : Will make 50 per cent. more than last year. *Buchanan* : Drought and leveling winds. *Chesterfield* : Fine yield and quality if frost delays.

NORTH CAROLINA.—*Franklin* : Lack of cultivation. *Cumberland* : Drought. *Pasquotank* : Short, but better than last year. *Beaufort* : Unusually well saved and sound. *Gaston* : Shortened by drought. *Cleveland* : Short. *Camden* : Good. *Greene* : Nearly average, but not enough for home use. *Perquimans* : Fully a third better than last year. *Chowan* : Good. *Haywood* : Late and of low growth on account of drought, but the ears are long and well filled. *Moore* : Early crops fine, later plantings injured by drought.

SOUTH CAROLINA.—*Orangeburgh* : Crop fine. *Lexington* : Late corn has held its own.

GEORGIA.—*Schley* : Good, and enough for home consumption. *Muscogee* : Short, cotton-seed fertilizer not applied. *Caloosa* : Injured worse by drought than ever before. *DeKalb* : Good. *Sumter* : Crop made ; 15 per cent. better than last year, but not enough planted. *Columbia* : Fine ; enough for home use. *Harris* : Better than last year. *Oglethorpe* : Turning out well in spite of a cool summer. *Upson* : As good as the land will bring where well cultivated, but a large proportion is not well cultivated. *Jefferson* : Better than usual. *Carroll* : Fine where well worked ; fodder largely saved in good order. *Pulaski* : Increased acreage and yield.

FLORIDA.—*Madison* : Good, as usual. *Gadsden* : Yield satisfactory.

ALABAMA.—Late corn injured by drought. *Greene* : Crop turning out well. *Coffee* : Late corn almost cut off by drought. *Conecuh* : Drought. *Montgomery* : Fine ; the late plantings injured by drought were few ; full ears and good grain. *Colbert* : Half a crop and of poor quality ; selling at \$1 per bushel ; usual price 40 to 50 cents. *Dallas* : Late plantings curtailed by drought. *Calhoun* : Early plantings good ; late, injured by drought. *Lawrence* : Half crop. *Clarke* : Early-planted upland crop very good ; river-bottom crops mostly ruined by drought. *Limestone* : Very poor. *Franklin* : Distressingly short in some localities. *Monroe* : Drought since July 20.

MISSISSIPPI.—*Attala* : Late plantings ruined. *Kemper* : Destructive drought. *Randall* : Some excellent ; some very poor. *Amite* : Late plantings injured by drought. *Winston* : Shortened by drought.

LOUISIANA.—*Iberia* : Selling at 50 cents to 75 cents per barrel. *Franklin* : Damaged

by rot. *Rapides*: Quality, average; quantity, one-fourth short. *Madison*: Late plantings damaged by drought.

TEXAS.—*Wood*: Sound and in good order. *Aransas*: Shortened by drought. *Bosque*: Drought. *Dallas*: Injured by drought; will yield 30 bushels per acre. *Palo Pinto*: Drought. *Austin*: Light. *Collin*: Short. *Fannin*: Pennsylvania field-corn matures about twenty days earlier than any other variety. *Harrison*: Drought. *Medina*: Injured by storms. *Hood*: Brings 50 cents per bushel; supply supposed to be ample for home demand. *Freestone*: Injured by heavy rains. *Uvalde*: Greatly injured by excessive rain. *Fayette*: Shortened by drought, but of good quality. *Upshur*: The product will be twice as great as last year. *Victoria*: Injured by heavy rain-storms. *Karnes*: Heavy rains have caused some ungathered corn to sprout on the stalk. *Kendall*: Seriously injured by rains.

ARKANSAS.—*Pulaski*: Light and chaffy. *Boone*: Continued drought since June. *Fulton*: Drought. *Garland*: Drought. *Prairie*: Very light. *Yell*: Almost a failure. *Cross*: General failure of all sorts of crops; not over a fourth of a crop of corn. *Washington*: Somewhat injured by chinchies; well matured. *Stone*: Twelve weeks' drought. *Independence*: Very short.

TENNESSEE.—*Jackson*: Better than last year, but not so good as usual. It will sell high. *Johnson*: Recent rains have brought up corn above average. *Gibson*: More generally cut for forage than usual; crop will average 10 bushels per acre; last year 25. *Grainger*: Very much improved by rains since July 11; nearly safe from frost. *Henry*: Drought. *Knox*: Seriously injured by grasshoppers. *Monroe*: Late corn had seasonable rains, but is in danger from early frost; fodder still green, and the grain still in the roasting-ear stage. The farmers are saving fodder, and it is hoped will be able to winter their stock. *Wilson*: Very light. *Grundy*: A fine growing summer. *Trousdale*: Late, but will yet come out if the fall be favorable. *McMinn*: Drought. *Robertson*: Late and damaged by worms. *Bedford*: Drought. *Washington*: Runners' white corn makes the neatest of roasting-ears; yields well. *Cheatham*: Improved by late rains, but late. *Obion*: Somewhat improved.

WEST VIRGINIA.—*Raleigh*: Turning out finely; some farmers average 50 bushels per acre. *Tyler*: Much injured by drought. *Monroe*: Much better than expected.

KENTUCKY.—*Anderson*: Cut short by drought. *Butler*: One-half the crop yet very green; a part just silking out. *Mason*: Not over three-fourths of a crop, but has matured well. *Adair*: Has improved greatly since the rains. *Bracken*: Cut short one-third by drought. *Grayson*: Has come out remarkably well. *Logan*: Materially injured by drought and army-worm. *Spencer*: Cut down by drought.

OHIO.—*Morrow*: Planted early, on good soil and well tilled, it gave a very fair crop; planted late and poorly cultivated, it is unremunerative. *Warren*: Shortened by drought, but the acreage, greater than ever before, will make the product average. *Geauga*: Injured by drought. *Hancock*: The largest crop ever grown in the county, but somewhat shortened by drought. *Noble*: Large area planted; injured some by drought, but shall have the largest crop for years. *Adams*: Shortened by drought. *Athens*: Injured by drought. *Delaware*: Full average in spite of extensive drought; growth of stalk small, but heavy and well-ripened ears.

MICHIGAN.—*Wexford*: The best crop ever grown here. *Hillsdale*: Being harvested four to six weeks earlier than ever known. *Oakland*: Will be a large yield. *Saginaw*: More smut than common. *Cass*: Better than expected a month ago.

INDIANA.—*Noble*: Will not exceed half a crop. *Switzerland*: Rather short; drought. *Tippecanoe*: Truly a splendid crop, and unusually forward. *Whitley*: A fine crop, of good quality. *Hamlet*: Fine; fully two weeks earlier than common; number one in quality. *Huntington*: Injured by drought. *Madison*: For about one hundred square miles in this section corn is an excellent crop, but in surrounding regions the crop is poor on account of drought. *Boone*: Drying out finely.

ILLINOIS.—*Fayette*: A failure; drought. *Mason*: Light and of poor quality. *Cumberland*: Light but well ripened. *Douglas*: Fine, and now ripe. *Macoupin*: Injured 20 per cent. by chinchies. *Madison*: A short crop of very light corn. The poorest fields have generally been cut for fodder to save something from the chinchies. *Montgomery*: Excellent on the bottoms, but on the prairies injured, and in some places entirely destroyed by the chinchies. *Washington*: Shortened one-half by chinchies. *McLean*: Although averaging not more than half a crop, some have fair corn in almost every part of the county, owing to thorough preparation of the soil before and after planting and frequent plowing and harrowing till June.

WISCONSIN.—*Ozaukee*: The best crop for the last twenty years. *Green*: A greater amount has been cut than ever before.

MINNESOTA.—*Sibley*: Very good. *Isanti*: Ripened in good condition, but less in quantity than usual. *Wright*: Good. *Goodhue*: All varieties well ripened. *Waseca*: Never better.

IOWA.—*Bremer*: Many ears not well filled for want of rain. *Chickasaw*: Not a full crop, but better than last year. *Clinton*: Dead ripe from old age. *Decatur*: A very large crop; the best in twenty years. *Des Moines*: Ripe before frost, but only three

quarters of a crop. Not less than 20 inches of water have fallen within the past month and corn is growing in the shock. *Harrison*: A greater acreage than ever before; early planted, very good, but late, inferior. *Howard*: Ripened before frost. More cut up for fodder than ever before. *Mitchell*: All matured. *Plymouth*: In some townships almost totally destroyed by the grasshoppers; in others, an abundant yield. *Washington*: Will be ripe enough to crib by the 20th of October; one-fourth short.

MISSOURI.—*Gasconade*: Almost an entire failure; drought and chinchies. *Greene*: Many pieces will not have a bushel of good corn per acre. *Cass*: Entire failure in parts of the county; half-crop in other parts, owing to seasonable showers. *Laclede*: Not half a crop, owing to severe drought and chinchies. *Moniteau*: All cut up to "rough" stock through the winter. *Wayne*: Cut short by drought. *Dent*: On upland suffered severely from chinchies and drought; some very fine crops on very low valley-land. *Platte*: Damaged by the grasshoppers and recent rains. *Montgomery*: Quite inferior in the south part of the county; in the north, extra good. *Newton*: The poorest yield ever known, owing to drought and chinchies. *Perry*: Almost a failure in about half the county, owing to drought and chinchies. *Reynolds*: In many fields will not make one bushel to the acre, being entirely burned. *Stoddard*: About two-thirds of a crop, but sound and good in quality; drought and chinchies cut it short. *Shelby*: Better than last year 120 per cent., and would have been much better if we had not had any chinch-bugs. We suffer more from them than from drought. *Jasper*: Will not average 5 bushels to the acre, owing more to chinchies than drought. *Maries*: Severe drought and the chinchies caused almost an entire failure of corn on uplands, and badly injured it on bottoms. *Pemiscot*: Not enough for home consumption; drought.

KANSAS.—*Woodson*: Many fields destroyed by drought and chinchies, but an average crop will be harvested. *Ottawa*: Utterly ruined by grasshoppers. *Ellsworth*: The grasshoppers destroyed all the corn. *Marshall*: About an entire failure. *Mitchell*: No corn, and very little hay, owing to drought. *Shawnee*: One-fourth of a crop; poor in quality. *Butler*: About half a crop, and worth \$1. *Clay*: A total failure; grasshoppers and drought. *Republic*: A failure. *Montgomery*: Less than half a crop; drought and chinchies, and want of thorough cultivation. Farmers who plowed deep, planted early, and cultivated thoroughly, report from 40 to 60 bushels per acre. *Neosho*: Hardly worth harvesting. *Labette*: On the streams, about three-quarters of a crop; on the prairies, not one-sixth; drought and chinchies. *Nemaha*: Only one-tenth of a crop, and very poor in quality. *Brown*: Only about 15 per cent. of a crop; drought, chinchies, and grasshoppers. *Douglas*: Nearly a universal failure; grasshoppers and drought.

NEBRASKA.—*Antelope*: But little left. *Richardson*: Almost a failure; chinchies and drought. *Lincoln*: Destroyed by the grasshoppers. *Adams*: Entirely destroyed by grasshoppers. *Cass*: Nearly a failure, owing to drought and grasshoppers.

CALIFORNIA.—*Del Norte*: Late. *San Luis Obispo*: Backward, as it was replanted, owing to ravages by grasshoppers, but a fine crop is anticipated.

UTAH.—*Kane*: Promises well.

POTATOES.

The only States which report the average condition above an annual average are Maine 101, and Florida 119; Rhode Island returns 100; all other States fall below, ranging from 98 in Wisconsin down to 26 in Kansas. Among the States which produce potatoes on a large scale, the returns of condition for October 1, this year and last, respectively, averaged in New York 94 and 107; Pennsylvania, 87 and 100; Ohio, 84 and 89; Michigan, 87 and 89; Indiana, 85 and 77; Illinois, 77 and 59; Iowa, 81 and 51; Missouri, 55 and 61; Maine, 101 and 98; New Hampshire, 97 and 98; Vermont, 94 and 108; New Jersey, 86 and 101. Lowest in condition, next to Kansas, are Nebraska, 43; Arkansas, 46; Kentucky, 51; Mississippi, 54; Maryland and Tennessee, 58; West Virginia, 69. The average condition for the whole country is 86, against 89 one year ago. The acreage reported in July was about 2 per cent. greater than in 1873. These figures indicate that the crop will fall somewhat below that of 1873, though no definite estimate can be made before the November returns, which report actual production compared with the previous year.

In localities in Maine, New Hampshire, Vermont, and Connecticut, rotting to some extent is noted; also in Maryland, Michigan, and Kan-

sas. The Colorado beetle is mentioned among the causes of low condition in New Jersey, Pennsylvania, Delaware, Maryland, West Virginia, Kentucky, Indiana, Illinois, Wisconsin, Minnesota, Iowa, and Nebraska. Grasshoppers in Iowa, Minnesota, Kansas, Nebraska, California, and Colorado Territory, but wide-spread droughts have been by far the greatest cause.

SWEET-POTATOES.

Among the States producing this crop, Delaware and California report an average condition; all other States fall below. Kansas, only 51; Arkansas, 59; Nebraska, 67. Except Indiana, 99, which produces comparatively few, the range of the remaining States is between 73 in Alabama and Louisiana, and 98 in Georgia and Pennsylvania. The general average condition is somewhat lower than in October, 1873. Further particulars respecting local exigencies affecting potatoes and sweet-potatoes will be found in the notes below.

MAINE.—*Oxford*: Yield and quality good. *Sagadahoc*: Some varieties rotting. *Androscoggin*: Generally fair, but rotting in some localities.

NEW HAMPSHIRE.—*Carroll*: Tops look well. *Hillsborough*: Some rot.

VERMONT.—*Caledonia*: Crop light; some rot.

MASSACHUSETTS.—*Berkshire*: Potatoes short and undersized.

CONNECTICUT.—*New London*: Early varieties rotting to some extent. *Windham*: Drought saved the crop from rotting. *Hartford*: Some rot.

NEW YORK.—*Queens*: Yield less than last year but quality superior. *Tioga*: Drought. *Columbia*: Drought affected late potatoes. *Erie*: Early Rose did well; other varieties injured by drought and bugs.

NEW JERSEY.—*Gloucester*: Colorado beetles.

PENNSYLVANIA.—*Clearfield*: Injured by Colorado beetles. *Northampton*: Vines injured by common corn grub. *Indiana*: Excellent quality and fair crop. *Columbia*: Some Colorado beetles. *Elk*: Nearly destroyed by Colorado beetles. *Erie*: Colorado beetles. *Berks*: Peerless the leading variety.

DELAWARE.—*Kent*: Colorado beetles shortened late crops.

MARYLAND.—*Baltimore*: Drought and bugs. *Dorchester*: Colorado beetles and rot. *Cecil*: Injured by drought and Colorado beetles.

VIRGINIA.—*Spottsylvania*: Promising. *King George*: Early crops good; late not so good. *Nansemond*: Second crop very fine. *Henrico*: Fine where they came up. *Fairfax*: Benefited by late rains. *King and Queen*: Very good. *Chesterfield*: Yield large; quality indifferent.

NORTH CAROLINA.—*Wilson*: Drought. *Cumberland*: Drought. *Beaufort*: Look fine. *Prince William*: Late rains will bring them to average if frost delays. *Haywood*: Drought.

GEORGIA.—*Pierce*: Drought.

FLORIDA.—*Leon*: Drought. *Madison*: Better than last year.

ALABAMA.—*Dallas*: Drought. *Marshall*: Drought. *Choctaw*: Drought.

MISSISSIPPI.—*Winston*: Shortened by drought. *Amite*: Drought. *Hancock*: Promising.

TEXAS.—*Aransas*: Early plantings injured by the recent rains, causing them to rot; late crops promising. *Bosque*: Shortened by drought. *San Jacinto*: Have kept better than usual. *Henderson*: Drought.

TENNESSEE.—*Lincoln*: Almost a failure. *Grainger*: Very short; early plantings nearly a failure; later are good. *Henry*: Drought. *Wilson*: Almost a failure. *Washington*: A failure. *Lauderdale*: Ruined by drought.

WEST VIRGINIA.—*Jefferson*: Much injury by the Colorado beetle.

KENTUCKY.—*Oldham*: A failure; prolonged drought. *Clarke*: Almost a total failure; drought and the Colorado beetle. *Grayson*: Late, both Irish and sweet, are fine. *Spencer*: Short, more from drought than the Colorados. *Anderson*: Irish, ruined by drought and the bug; sweet, nearly an average crop. *Butler*: Irish, almost a failure.

OHIO.—*Butler*: Seriously injured by drought. *Medina*: Shortened by drought. *Washington*: Few were planted for fear of bugs. Both the early and the late crops suffered from drought. *Morrow*: Early potatoes have done much better. *Vinton*: Early, injured by drought. *Geauga*: Late, injured by drought. *Delaware*: Very poor yield, but excellent in quality.

MICHIGAN.—*Delta*: Early Rose, hitherto the most profitable variety, are being injured by rot. *Surry*: Great injury by drought and bugs. *Hillsdale*: Light, from extreme drought. *Saginaw*: Scabbed with worms and inclined to rot. *Cass*: Late, have done well.

INDIANA.—*Floyd*: Early, an entire failure. We raise no late potatoes. *Madison*: Much damaged by the Colorado beetle. *Brown*: Shortened one-half by drought. *Tippecanoe*: Splendid in quantity and quality. *Whitley*: Above an average crop, of good quality.

ILLINOIS.—*Fayette*: Irish, nearly a failure; sweet, a fair crop. *Wabash*: Early, 60 per cent. of an average; rotted badly after they were dug. Late, promising. *Lee*: A light crop.

WISCONSIN.—*Door*: Good, except the very early planted. *Douglas*: Yield pretty well in spite of the bugs. *Juneau*: Fair. *Green*: Much better than usual.

MINNESOTA.—*Sibley*: Injured by the locust, potato-bug, and dry weather. *Houston*: Injured by drought.

IOWA.—*Woodbury*: A poor crop, though better than last year. *Chickasaw*: Shortened by drought. *Harrison*: Irish, injured by grasshoppers, bugs, and drought; sweet, good, and an increased acreage. *Howard*: Light. *Linn*: The late crop much shortened by drought.

MISSOURI.—*Caldwell*: Late, nearly a failure. *Platte*: No late Irish potatoes in the county; a fair yield of early, but they soon rot if left together in large quantities. *Adair*: The largest crop of sweet-potatoes ever known. *Perry*: Nearly failed from drought. *Pemiscot*: Did not return the seed planted; drought.

KANSAS.—*Douglas*: Late potatoes a failure; sweet, one-fourth to one-sixth of a crop. *Jackson*: Irish, about a failure, except Early Rose; sweet, poor but rather better than Irish. *Ottawa*: Nearly ruined by grasshoppers. *Crawford*: An entire failure. *Labette*: Irish, nearly a failure. *Neosho*: Almost an entire failure. *Marshall*: About an entire failure. *Mitchell*: Early varieties, half crop; late, an entire failure except where mulched very deep with old straw; dry weather. *Franklin*: The crop improving, as the late rains have helped it. *Butler*: We have no potatoes except a few early ones, and they are rotting considerably. *Clay*: A total failure; grasshoppers and drought. *Republic*: Late, failure. *Montgomery*: Early Rose did well; late crop entire failure, drought.

NEBRASKA.—*Antelope*: Very poor yield; whole settlements without a bushel. *Richardson*: Late; not worth digging. *Lincoln*: Destroyed by the bugs.

CALIFORNIA.—*Del Norte*: Very poor crop. *San Luis Obispo*: Ravages by grasshoppers necessitated replanting, but a fine crop is anticipated.

COLORADO.—*Weld*: Seriously injured by grasshoppers. *Costilla*: An entire failure.

UTAH.—*Kane*: In parts of the county almost a failure; the vines turning yellow and dying.

TOBACCO.

The condition of the tobacco-crop is somewhat higher than was foreshadowed by the September returns, though still the promise is for less than two-thirds of a crop; the average of all the States reporting this crop is 61. Only two States, Connecticut 109 and Georgia 101, are above average; Massachusetts, Florida, and Oregon are full average. These five States, however, represent less than 6 per cent. of the entire crop. Kentucky, which produces about two-fifths of the entire crop of the country, averages but 44. Virginia, the next largest tobacco-growing State, averages but 65; Tennessee, the third in rank, 44; Ohio, the fourth, 40; Maryland, the fifth, 78; Missouri, the sixth, 65. All the other States are below average.

MASSACHUSETTS.—*Hampden*: Early-cut tobacco is curing remarkably well, of good colors and without any white streaks; only half the crop is of this character; the rest is badly rusted in the field and will be of bad color.

CONNECTICUT.—*Hartford*: A third less acreage planted than the average of past years; product per acre and quality above average.

MARYLAND.—*Montgomery*: Very green and late; an early frost would destroy nine-tenths of the crop; late rains beneficial. *Calvert*: Improved a little from late rains, but they did not come in time to save the crop. *Prince George*: Shortened by drought.

VIRGINIA.—*Caroline*: Smallest crop planted in twenty years; it looks well. *Lunenburg*: Shortest crop ever made; failure of setting plants and drought. *Madison*: Early stands good; late, small and light. *Spottsylvania*: Small acreage; small and poor crop; a few fine pieces ready to cut. *Pittsylvania*: Small acreage; late and in danger from early frosts. *Buckingham*: Storm September 28, injured late crops, which had been improving very rapidly. *Dinwiddie*: Badly fired by dry, hot winds. *Halifax*: Crop small and green; much injured by late storms. *Nelson*: Late and poor. *Mecklenburgh*: Injured by a drought, and then by a storm. *Albemarle*: Late rains have raised the crop above

average. *Fluvanna*: Half crop. *Montgomery*: In danger of frost. *Amelia*: Reduced 5 per cent. by equinoctial gales. *Louisa*: Much must be cut green. *Orange*: Injured by storms. *Chesterfield*: Half crop planted; quality average.

NORTH CAROLINA.—*Greenville*: Injured by storms; about half the crop is above average. *Alamance*: Half crop; injured in quality by storms. *Caswell*: Greatly damaged by storms. *Haywood*: Drought. *Buncombe*: Not a fourth of last year's acreage planted.

MISSISSIPPI.—*Hancock*: Not turning out well.

ARKANSAS.—*Washington*: Greatly benefited by September rains. *Stone*: Twelve weeks' drought.

TENNESSEE.—*Henry*: Very short. *Smith*: One-fifth of an average crop. *Trousdale*: Pretty much a failure; usually there are about 2,000 hogsheads shipped out of the county; this year there will not be 20. *Robertson*: Almost an entire failure.

WEST VIRGINIA.—*Mercer*: Late; about two-thirds of a crop.

KENTUCKY.—*Adair*: Almost a failure. Only a small amount planted; most of that very late, and in danger from frost. *Edmondson*: Small quantity growing and that late. *Grayson*: This, our principal export crop, is almost a failure. Very little was planted, and that is still standing. *Graves*: Not over one-fourth of a crop, and a great part of that will have to be cut green. *Butler*: Yet very green, and a very small quantity of it. *Owen*: This crop, our great staple, will not exceed one-fourth of an average. *Cumberland*: Our leading staple for money, and is a failure; dry weather.

OHIO.—*Vinton*: Not more than one-eighth of a crop; eaten by bugs, and injured by drought. *Noble*: Almost a failure.

MISSOURI.—*Adair*: Looks well; a good crop. *Pemiscot*: Almost an entire failure.

KANSAS.—*Clay*: A total failure; grasshoppers and drought.

SUGAR-CANE.

Georgia and the Gulf States report a considerable growth of sugar-cane. In Georgia, twenty-eight counties report an average condition of 95. In Alabama, fifteen counties average 78, the lowest being in Pike, and the highest in Escambia. Eight counties of Mississippi report a condition largely above average; a specially favorable showing is made in Smith County. Eight parishes in Louisiana average 94; seventeen counties in Texas reach only 87.

GEORGIA.—*Pierce*: Drought. *Early*: Doing nothing; drought. *Sumter*: Drought. *Terrell*: Badly injured by drought.

FLORIDA.—*Wakulla*: Terribly shortened by drought. *Hamilton*: Drought. *Leon*: Drought. *Gadsden*: Ten per cent. above average.

ALABAMA.—*Dale*: A failure. *Coffee*: Cut off by drought. *Conecuh*: Drought. *Pike*: Dried up. *Choctaw*: Seriously damaged by drought.

MISSISSIPPI.—*Hancock*: Turning out poorly. *Jackson*: Increased attention to cane; climate and soil very favorable.

LOUISIANA.—*Saint Mary's*: Greatly shortened by drought. *Iberia*: Stunted by protracted drought. *Rapides*: Greatly thrown back by the drought.

FATTENING-CATTLE.

The number of fattening-cattle is equal to or above last year in Maine, Massachusetts, Connecticut, Delaware, South Carolina, Florida, Alabama, Minnesota, and the Pacific States; in all the others the number has decreased. The condition is above average in the New England States, New York, Delaware, Virginia, North Carolina, South Carolina, Florida, Alabama, Texas, Iowa, and the Pacific States; in all the others it is below.

Table showing the condition of crops, &c., on the 1st day of October, 1874—Continued.

States.	POTATOES. (<i>Batatas</i> <i>edulis, sweet.</i>)	TOBACCO.	BEANS.	PEAS.		SORGHUM.	SUGAR- CANE. (Not sorghum.)	COTTON.	OLD WHEAT.	FATTENING CATTLE.	
	Average con- dition Octo- ber 1.	Average con- dition Octo- ber 1.	Average con- dition Octo- ber 1.	Average com- pared with last year.	Average con- dition Octo- ber 1.	Average con- dition Octo- ber 1.	Average con- dition Octo- ber 1.	Average con- dition Octo- ber 1.	Average amt of old wheat compared with last y'r.	Average num- ber of fatten- ing cattle compared with last y'r.	Average con- dition Octo- ber 1, com- pared with last year.
Maine.....	.....	.....	101	100	99	.....	.....	.....	97	100	105
New Hampshire.....	.....	.....	94	101	100	.....	.....	.....	98	98	104
Vermont.....	.....	.....	95	101	100	.....	.....	.....	72	97	105
Massachusetts.....	.....	100	100	97	100	.....	.....	.....	.....	104	109
Rhode Island.....	.....	.....	100	100	100	.....	.....	.....	.....	75	100
Connecticut.....	87	109	109	105	102	.....	.....	.....	100	101	109
New York.....	.....	54	99	98	98	.....	.....	.....	78	91	100
New Jersey.....	92	.....	99	.....	.....	.....	.....	.....	97	96	96
Pennsylvania.....	98	82	100	95	98	100	.....	.....	86	94	95
Delaware.....	100	.....	.....	.....	.....	.....	.....	.....	105	100	105
Maryland.....	92	78	98	.....	.....	92	.....	.....	76	98	100
Virginia.....	96	65	98	98	98	102	.....	.....	73	96	100
North Carolina.....	95	90	98	95	95	98	.....	.....	87	99	101
South Carolina.....	95	.....	96	102	95	97	.....	.....	100	103	101
Georgia.....	98	101	98	105	99	101	.....	.....	.....	96	98
Florida.....	96	100	.....	96	92	91	.....	.....	.....	101	100
Alabama.....	78	92	97	95	78	91	.....	.....	108	104	103
Mississippi.....	79	95	90	92	80	83	.....	.....	75	96	92
Louisiana.....	78	80	.....	95	91	.....	.....	.....	.....	93	95
Texas.....	84	92	89	95	80	89	.....	.....	.....	92	104
Arkansas.....	59	87	35	88	69	67	.....	.....	.....	94	89
Tennessee.....	90	44	86	91	87	93	.....	.....	103	95	96
West Virginia.....	90	74	95	97	90	85	.....	.....	73	99	98
Kentucky.....	91	44	87	88	84	93	.....	.....	86	90	93
Ohio.....	92	40	98	101	90	100	.....	.....	85	91	95
Michigan.....	71	.....	96	92	96	93	.....	.....	71	95	93
Indiana.....	99	77	97	100	100	92	.....	.....	99	96	95
Illinois.....	.....	.....	90	96	96	90	.....	.....	88	96	96
Wisconsin.....	.....	39	95	96	99	102	.....	.....	61	96	96
Minnesota.....	.....	.....	89	96	96	99	.....	.....	76	105	99
Iowa.....	96	.....	86	91	96	99	.....	.....	80	94	100
Missouri.....	80	65	67	91	88	99	.....	.....	79	93	91
Kansas.....	51	98	62	85	88	68	.....	.....	68	85	97
Nebraska.....	67	.....	31	81	85	83	.....	.....	66	93	94
California.....	100	93	100	96	98	.....	.....	.....	103	106	105
Oregon.....	.....	100	100	100	100	.....	.....	.....	93	107	101

EXTRACTS FROM CORRESPONDENCE.

AGRICULTURAL PROSPECTS.—*Russell, Ala.*—The low price of cotton has caused many farmers to abandon the use of bacon entirely, it being so much higher than usual. They find milk and butter very good substitutes. There is more economy practiced, with less inclination to go in debt than in any year since the war.

Harris, Ga.—Corn is better than last year, yet the people seem to be hard run to live, money being scarcer than at any time before the war.

Yell, Ark.—In some parts of the county there will not be enough corn for bread, and should we have a hard winter the stock will starve. In many parts the farmers are moving to sections where there is a good supply of breadstuffs.

Craighead, Ark.—Sharp times here; but there is this consolation, that it is the same thing everywhere.

Hempstead, Ark.—It seems that many of the poorer and more improvident class of persons must suffer during the coming year. Farmers are concluding that no money can be made by employing them, and they provide nothing except finery to wear to big meetings.

Jefferson, Ark.—The lower class of laborers are suffering from scarcity of provisions, with very little cotton for them to pick, and, consequently, very little hiring to be done.

Stone, Ark.: Taken as a whole, we have had an unusually hard season.

Grundy, Tenn.—A fine growing summer-season to make up for late planting on account of heavy floods. Cattle doing remarkably well; pasture good, and more fodder than usual, laid by.

Montgomery, Tenn.—Our people dread the coming winter and spring.

Berkshire, Mass.—With all deficiencies, the amount of crops is encouraging to the farmer, and, as a whole, the products of the year ought to be satisfactory.

Northampton, Va.—We can compare with any section in regard to sweet potatoes, in yield, quality, and remuneration.

Greene, N. C.—With the decreased yield and low prices of cotton I feel safe to say there will be more broken farmers than in 1867.

Gadsden, Fla.—The cotton-crop has been made at less expense than any since the war. But little money was expended for commercial fertilizers, and economy is now the order of the day, partly forced by the impracticability of obtaining the usual advances from factors and merchants, and partly voluntary, from the conviction that a reform in that particular has become an absolute necessity.

Henry, Ala.—A tendency is manifest among our people to adopt more judicious rules of economy, and among farmers a determination to raise their own supplies.

Lowndes, Miss.—The year will be remembered as one of unusual anxiety and solicitude. The low prices of cotton and the high prices of provisions will cause a contraction in cotton-culture. There is a disposition to diversify crops.

Fairfax, Va.—Less than usual of any kind of wheat will be sown this fall, on account of a growing disposition to go into something that promises larger and more certain results.

King and Queen, Va.—For the last five years previous to the present,

we have had continual drought, but this year has been most favorable to the farmer. Its effects are felt already in increased prosperity.

Clay, Ala.—Taken altogether, this has been a most unfavorable year for the farmer; nothing we planted has realized expectation; heavy rains in the spring filled the growing plants with sap, and a short drought in June nearly ruined us. The fall has been favorable for cotton; what little we made will soon be gathered in fine condition, but the price will not remunerate us for labor and manure. Cotton is ruining us; our people must try mixed husbandry, or all go into bankruptcy.

Independence, Ark.—Stock-hogs have died off, leaving 20 per cent. of the people literally without meat for a year to come.

Washington, Kans.—The trees which the grasshoppers denuded of leaves, have put out again their spring foliage. In some instances peaches and blossoms are to be found on the same tree. Lettuce, spring radishes, water-cress, and onions are ready for the table, being the growth of only a few weeks. The late potatoes, the vines of which were green, will make a crop if the frost holds off a little, and the same may be said of turnips, which are widely sown. Pastures for stock are better now than at any time all summer, and farmers are still making hay. Kansas can beat the world in redeeming itself.

Merced, Cal.: The wheat-market in the interior is in a deplorable condition. There is no remuneration to farmers at present prices unless conveniently situated for shipping. Many farmers are drawing money on grain in store and holding for better prices—paying $1\frac{1}{2}$ per cent. per month, which I think a ruinous policy.

Brown, Kans.: We have had very small crops of small grain, but the drought, chinchies, and grasshoppers have ruined the corn to such an extent that we shall get only about 15 per cent. of a usual crop. It is generally believed here that the chinchies did four times the damage done by both the drought and grasshoppers.

Crawford: Dry weather, chinchies, and grasshoppers have about ruined the corn and potatoes; beans and buckwheat are failures; will not return the seed.

Osage, Nebr.: Drought, chinchies, and grasshoppers were the cause of our failure in crops.

Trimble, Ky.: The best season for a long time. Crops are plentiful.

Putnam, Mo.: Altogether we have had one of the most favorable seasons for many years, for which we should be thankful to the great Giver of every good and perfect gift.

Jasper, Ind.: In my opinion we have more grain of all kinds in this county than ever before.

San Bernardino, Cal.: The cereals have done remarkably well this year. Wheat is not always a safe crop, owing to rust, supposed to be occasioned by sea-fog. Our great drawback has been the want of a market, being so far inland; but the discovery of rich mines in our neighborhood, which are being rapidly developed, will make a market for all our surplus produce, and for more than we can spare.

Cherokee, Kans.: Most of the farmers obtain credit on their growing wheat-crop, generally to be paid from the first of August to the middle of October. The unusually low price of wheat, 65 to 85 cents, has taught them a very necessary lesson—buy less and pay when you buy.

Pike, Ind.: If hogs or cattle are not driven here to be wintered or fattened, we will have to boat our corn to the lower country.

OPIUM POPPY VERSUS TURNIPS.—*Stanley, N. C.*: The opium poppy did not turn out well this year. It stood the winter well, grew tall

plants with large capsules, but little opium in them. It is remarkable that turnips, sown where the poppy grew, came up, but would not get beyond the seed-leaf. Repeated sowings on the same lot had the same result. Turnips sown in spots not far removed from the opium-patch are doing very well, and are less annoyed by bugs than ever before. Can it be that the opium poppy leaves in the ground elements incompatible with the life of a turnip?

WHEAT-CULTURE.—*Snyder, Pa.*: Much "Shoemaker" wheat raised here last year. Millers would not pay as much for it as for other wheat, alleging that it does not make good flour.

Madison, Va.: Large quantity of Fultz wheat sown this fall; very popular.

Stafford, Va.: Low prices and poor yield; more discouragement than at any time since the war.

Charles City, Va.: No old wheat left, on account of repeated failures of the crop.

Mitchell, N. C.: Touzelle, not adapted to this climate; Tappahannock, the best.

Nicholas, Ky.: Fultz wheat, from the Department, does finely. I raised about 24 bushels per acre.

Boone, Mo.: I raised 35 bushels of Fultz on seven-eighths of an acre; Tappahannock, 21 bushels per acre.

San Luis Obispo, Cal.: Touzelle, from the Department, yields remarkably. One field of 12 acres averaged 58 bushels per acre. It suits this section; is free from smut, and sets well against our summer winds.

SEED-WHEAT FOR EGYPT.—*Sonoma, Cal.*: That the excellence of our wheat is attracting the attention of foreign agriculturists is proved by the fact that the government of Egypt has ordered a large quantity of our best wheat for seed in that country.

ANTIDOTE FOR SMUT IN WHEAT.—*Sonoma, Cal.*: We have neither rust nor smut in any of our wheat-fields. I beg leave respectfully to differ from the advice given on page 467 of the monthly report of the Department for November and December, 1871, wherein farmers are advised to "discard all idea of mixing ingredients with it (seed-wheat) to destroy smut." This question has been so well and thoroughly tested in our State as to be no longer even a matter of doubt. All our seed-wheat is soaked from eight to twelve hours in a solution of bluestone, (sulphate of copper,) in the proportion of six ounces to every 100 pounds of wheat. Smut being a fungoid growth, resulting from diseased grains, the germ or vitality of these diseased grains is killed by the solution of vitriol, and thus prevented from growing and contaminating the sound grains. A farmer here would be thought crazy were he to sow his wheat without subjecting it to the above process.

WHITE WINTER-RYE.—*Pettis, Mo.*: From 4 quarts of white winter-rye I harvested $2\frac{1}{2}$ bushels—twenty-fold—the best in quality I ever saw. Sown on the 5th of November, broadcast, on new white-oak land. It was injured to some extent by chinch-bugs.

Stone, Mo.: The white winter-rye sent me from the Department yielded a splendid crop both in quantity and quality. It is decidedly the finest rye I ever saw.

Pemiscot, Mo.: The white rye sent me from the Department yielded one bushel from two quarts, notwithstanding the dryest season for many years.

Thayer, Nebr.: The white rye received from the Department does splendidly here.

CORN-CULTURE.—*Mitchell, N. C.*: Runners' white corn takes the lead here; it is large and early enough to mature finely.

Des Moines, Iowa: The surplus of corn in this county is being fed to stock brought in from the West. The year 1875 will see corn higher than for a number of years past. This county is drained of old corn, and nearly every body is feeding new.

TREE-CULTURE.—*Iberia, La.*: I obtained a few seeds of the *Eucalyptus globulus*, and succeeded in raising one of those beautiful trees. It is now 5 feet high and seventeen months old. Other parties have had excellent success in raising these trees.

COTTON-CULTURE.—*Beaufort, N. C.*: Much disappointment at the yield; the only consolation is, that there are no bills for fertilizers to pay this year.

Dooly, Ga.: Drought from August 2 to September 22 ruined the crop. The planters are in a desperate condition; short crops; heavy liens; cotton worth only 13 to 13½ cents per pound, and bacon 16 to 17. When, O when, will they learn to plant less cotton and more corn and wheat? Not till starvation stares them in the face.

Washington, Miss.: Rained April 27, the cotton coming up, and ceased suddenly. First rain on cotton and corn, July 11; second, September 24, of no benefit to the crop. The July rain caused about a third of the crop to come up, the seed previously failing to germinate for lack of moisture. The crops that came up by reason of the July rain are perhaps better than those that came up in April, and have been made without any rain at all. Nearly all vegetation, except cotton and Bermuda grass, was burned up by drought.

GRASS AND PASTURES.—*Troup, Ga.*: There was a good crop of brush peas, but owing to the drought of August and September running peas did not make a full crop. We rely upon them for fall pasturage, and curing the vines for hay, which we consider equal to the best clover hay; it has no equal for milch cows.

Wilkes, Ga.: German millet has been grown successfully as a forage crop. It requires rich land, but yields immensely of forage and seed.

FRUIT-CULTURE.—*Burlington, N. J.*: Considerable blight in apple and pear trees. In some orchards the ends of limbs have died.

Alleghany, Md.: For years my pear-trees were blighted with a prevalent disease. I planted them twenty years ago, but they never matured a pear. In the spring of 1873 I commenced using soap-suds around the roots, and last fall I had some pears. I then mulched the ground around the trees with manure, and this spring scattered a peck of ashes around each tree, again using soap-suds. This summer and fall, all my trees bear full crops of sound fruit.

Grant, W. Va.: A good beginning has been made in grape-culture, but of late years the dry-rot has greatly reduced the yield, and has discouraged growers. Is there no reliable remedy?

Pulaski, Ill.: The scab or spot is increasing from year to year to such an extent as to make it nearly impossible to have any winter apples. This disease, with a disease known here as "root-rot," seems to increase with time in spots after it once makes its appearance. If the latter disease kills one tree in a locality, other trees near it die out, and it is almost impossible to get trees set out in the vacancies to grow.

WEATHER.—*Wyoming, Pa.*: Most severe drought ever known in the county.

Columbia, Fla. : More hail fell September 10, than for many years together.

Wakulla, Fla. : Little rain since August 1.

Aransas, Tex. : We have had the heaviest rain-fall and the highest salt-water tide known for years. The heaviest part of the storm was during the night of September 5. It raged still more severely to the west of us.

Sagadahoc, Me. : Three light frosts in September, but not enough to kill pumpkin-vines.

Indiana, Pa. : First frost September 22; no damage.

Westmoreland, Pa. : Slight frosts in some localities.

Elk, Pa. : The crops of Fox Township, except wheat, were almost entirely destroyed by successive hail-storms.

Mecklenburgh, Va. : Terrific storm September 28; great damage to corn and tobacco.

Hempstead, Ark. : No rain from May 12 to September 16, in many parts of the county; heat intense.

Ontario, N. Y. : First frost October 2.

Hudson, N. J. : No rain from August 9 till September 12; then it came in torrents.

Victoria, Tex. : Heavy rains daily up to September 27; all our streams are out of their banks, causing total destruction of bottom crops.

Stone, Ark. : Drought of twelve weeks cut off cane and cotton and dried up pastures.

Oldham, Ky. : Drought from the latter part of April till the present time; the dryest year since 1854; streams and springs have failed.

Williams, Ohio : We are still suffering from a very severe drought. In many localities there has not been a thorough drenching rain this summer.

Decatur, Ind. : The season has been peculiarly unfavorable to crops; scarcely enough rain to keep life in vegetation. There will be a smaller amount of wheat sown this fall than usual; the ground is too dry and hard for breaking. There has not been much sown up to this date.

Ripley, Ind. : A four-weeks' drought until Saturday, when we had a good rain; but pastures are dried up, and in many localities water has to be hauled two or three miles for family use, and cattle driven to water the same distance.

Jennings, Ind. : We are having the severest drought we have ever experienced at this time of the year; wells and cisterns nearly all dry.

Butler, Mo. : Dry weather is the cause of the failure of crops here.

Vernon, Mo. : But one light shower, last week, since the middle of July.

Grundy, Ill. : A severe drought, which has prevailed for three months, still continues. It cuts short all late-growing crops. Stock-water is scarce, and farmers have been feeding their cattle since the 20th of July.

Lucas, Ohio : Have lived here thirty-six years, and never before saw the wells and streams so low.

Phelps, Mo. : From the 9th of July to the 24th of September we had no rain.

Boone, Mo. : Not since 1854 have we had any drought to compare with the one we are still afflicted with. In the north and interior of this county nearly all the stock-water is exhausted.

Perry, Mo. : Everything that grows has nearly failed from the severe drought—unprecedented in this county—which has lasted from the 2d of May until September.

Pettis, Mo. : Stock-water very scarce. The old citizens say the creeks here are lower than ever before.

Pemiscot, Mo.: The dryest season for many years; no rain to break ground for wheat until the 25th of September.

Pawnee, Kans.: Drought and grasshoppers entirely destroyed our crops, except oats, sorghum, and castor beans. The oats had matured before the grasshoppers came, and the sorghum and castor beans they would not eat.

Riley, Kans.: If we except a moderate crop of wheat and oats, this county is nearly cleaned out by drought and grasshoppers.

LOCAL PRICES.—*Pike, Ind.*: We are hauling our wheat to Vincennes and other points at \$1 per bushel. Oats are selling at Vincennes at 40 cents. Sweet potatoes are selling here at 65 to 75 cents—less than the price of Irish potatoes.

Switzerland, Ind.: Fat hogs are scarce, and prices rule high; stock hogs scarce and in demand.

Tippecanoe, Ind.: Potatoes, splendid in quantity and quality, are bringing \$1 at Lafayette on account of the great failure in parts of Illinois. For corn 50 cents is freely offered; wheat, \$1.

Moultrie, Ill.: Corn from 35 to 50 cents in the field; hay, \$10 per ton at stack, heretofore generally from \$5 to \$5.

Carroll, Ill.: Price of wheat 80 cents; rye, 90; oats, 42; old corn, 70; new, 50.

Richland, Wis.: Hops all sold by growers at 30 to 33 cents. Fat cattle very low—only 2 cents per pound for cows; fat hogs are selling alive for 5 cents per pound.

Mower, Minn.: No. 1 wheat selling at 71 cents along the line of the Southern Minnesota Railroad. Potatoes, 50; oats, 30; timothy seed, (half crop, but good quality,) \$2.50.

Madison, Iowa: New corn is selling at 33½ cents per bushel.

Appanoose, Iowa: Feeders of cattle and hogs (from Kansas and Nebraska) have overrun the State, and corn is selling at \$10 to \$20 per acre.

Platte, Mo.: The wheat crop is now fully in market, selling at from 85 cents to \$1, according to quality. Rye, 80 cents; oats scarce, selling at 50 cents; corn, 50 cents.

Jasper, Mo.: Apples, 25 cents per bushel in the orchard.

Chase, Kans.: Fall wheat, 85 to 90 cents; spring, 50 to 70; corn, 80 cents to \$1; potatoes, \$1 to \$1.50; hay, \$2 to \$4 per ton.

Butler, Kans.: Corn, about half a crop, is worth \$1.

Douglas, Kans.: The price of a poor article of corn is 65 cents per bushel, against 20 cents last year. Old corn is shipped from Iowa, and sells at 85 cents.

Thayer, Nebr.: Corn sells in this county at 75 cents, and wheat, at only 60 cents cash.

Adams, Nebr.: Plenty of wheat at 65 cents.

Rio Grande, Col.: Potatoes are scarce, and worth 5 cents per pound.

FLAX-CULTURE IN MINNESOTA.—*McLeod*: The culture of flax for the seed has been introduced during the season. The result has been satisfactory. The flax-crop this year has been 50 per cent. more profitable than that of wheat.

Stearns: Flaxseed will undoubtedly supersede the wheat-crop, except for home consumption. It is now ascertained, from two years' raising, that it pays much better than wheat, the average per acre being nearly the same, while the selling price is more than double. The cost of raising is the same. Another advantage of raising flax is, that on ground sown with it the previous year one-third more wheat per acre can be

raised. From the book of the flax agent I learn that fifteen times the amount of last year's production in the county will be marketed this year—65,000 bushels against 4,000—which, at \$1.30 per bushel, will bring to the farmers \$84,500.

BET-SUGAR.—*Santa Cruz, Cal.*: A beet-sugar factory, built in this county the past season, will commence operations this October. There are 1,200 acres of sugar beets now in fine condition for its use.

HEMP IN CALIFORNIA.—*Alameda*: The cultivation of hemp is attracting some attention in California. That planted in this county the past season has done extremely well; some small fields have grown to the height of 8 or 10 feet, and the fiber is pronounced equal to the imported. It is conceded by those acquainted with the growing of hemp that there is much land in this county and throughout the State well adapted to its production.

BURNING OUT CHINCHES.—*Stoddard, Mo.*: One of our farmers found after his wheat harvest that the chinch-bugs were swarming into his corn, whereupon he strewed dry straw among it and burned it. This, with slight injury to the crop, killed nearly every bug.

CASTOR-BEANS.—*Pawnee, Kans.*: The grasshoppers, which destroyed other crops, would not eat the castor-bean. Even this dry season the plant is thrifty and full of blooms; no insect meddles with it at any stage of its growth.

LIVE STOCK.—*Madison, Va.*: Increased attention to stock of all kinds.

Dale, Ala.: Our hogs have the cholera and our cattle the black tongue.

Greene, Ala.: So much land is lying out that the cattle have better pasturage than heretofore.

York, Pa.: Very few cattle yet brought into the county for fattening, on account of the malignant disease among the herds of our most extensive buyers.

Elizabeth City, Va.: In the item of "fattening cattle" it is difficult to get a correct estimate. *Dwarf, scrawny, lean*, is the general rule here, and "fat" is the exception. A good yoke of working oxen is an uncommon sight; our farmers prefer mules for heavy work.

James City, Va.: Heavy mast of chincapins; will give fattening hogs a fine start.

Beaufort, S. C.: The range for stock in the middle and lower portion of the county is equal to any pasturage in the world. Cattle are in good condition the year through, requiring no other feed than grass; they are as fat as Tennessee stall-fed beef from May 1 to January 1.

Gibson, Tenn.: Farmers generally are herding their surplus horses, mules, and cattle, and driving them to the Mississippi bottoms to be pastured upon the cane during the winter. Herders are employed at so much per head to watch over them and return them in the spring. The herders salt and feed them to corn twice a week, and charge from \$1 to \$2 per month per head. By this means large numbers are provided for during the winter and corn saved for fattening pork.

Monroe, Ala.: No cattle fattened in this county except those pastured on the public domain.

Marion, Ind.: A largely increased number of hogs will be fed this season in consequence of a good crop of corn and the failure of that crop in other States. A large number has been brought from Kansas, Missouri, and Kentucky. This applies to the State at large rather than to

this county, as the home market for corn is better in this than in adjoining counties, or in others still more remote from large markets.

Leavenworth, Kans.: Farmers are selling their hogs to drovers in Iowa and Illinois, as corn is 70 cents per bushel, and they cannot feed, to any profit.

Scott, Ill.: Large numbers of hogs are coming in here from Missouri to be fed.

Douglas, Kans.: Fully one-half of our hogs have been sold and shipped away to fatten; the remainder will be butchered early.

Posey, Ind.: Our farmers are introducing improved varieties of cattle, sheep, and hogs.

Pawnee, Kans.: Cattle are looking better than usual at this time of the year. The drought has not been severe enough to damage the grass much, and it seems to have more nutriment in it than in a wet season. This county is peculiarly fitted for the raising of cattle and sheep. The short nutritious grass, called "buffalo-grass," upon the high grounds, and the ranker growth of blue straw upon the bottoms for hay, seem to meet all the wants of the stock-raiser. Short, mild winters, with good winter feed, render it possible to bring cattle through without any feed, as has often been done here successfully.

Mitchell, Kans.: Sheep are doing exceedingly well, looking robust and healthy, no disease prevailing, and everything encouraging to the sheep-raisers, except a near market for wool. This might be had, as we have abundant water-power on the Solomon River, and produce sufficient wool to keep a large factory in operation throughout the year.

NEWSPAPER CROP-REPORTS.

The newspaper crop-report is an individual expression, oftener than otherwise, of a villager rather than a farmer, in form as variable as the individuality of reporters, without reference to any standard of comparison, one with another, and without any certain means of exact interpretation. Thus, if one is indefinite in quantity and proportion, one hundred equally indefinite only make a chaotic aggregate. For example, from a long list of such reports, which cost heavily in "enterprise" and money, I try to calculate the acreage of a crop from its details of comparative area. "The number of acres is small," but the percentage of decrease may be 10, 30, or 50. "There is a great deal of corn planted," yet I must have a new "deal" before the winning card of ascertained acreage is secured. There has been "an increase in the number of acres," but no one can say whether it is large or small. "More than usual has been sown," however much "more" may mean. "Farmers have put all in the ground they can possibly manage," which is the record of each recurring year, though circumstances greatly modify the mathematical import of "all." Some make exact comparisons; one returns one-half more than last year, another one-third, another still, a quarter, but rarely is the comparison more closely drawn; it appears not to be worth while, if 33 per cent. shall seem a unit too low, to split the difference between that and 50; or if the increase is evidently a few acres, it might be undignified to say less than a quarter, or at least 10 per cent. There are others who scorn to accept an increase less than

the Dutchman's 1 per cent.; so if the area is not "thrice" the former figure, it certainly must be "double."

If the present condition of a crop is sought, the information conveyed by these random reports is equally indefinite. I quote from models: "Farmers think they will have a good crop;" "splendid prospects for corn;" "wheat on dry land will exceed the average, on clays will be short;" "rains are bringing corn along very fast." The reporter fails to indicate the amazing rate of speed at which the rains are leading the maize; and when he tells us that "the corn-crop will be heavy," we fail to see whether he expects it to weigh 70 pounds to the bushel, or yield 100 bushels to the acre. And if a full average is not expected, of course it is "half a crop," or if unwonted nicety of comparison is attempted, three-fourths of a crop. The exaggerated and slipshod expressions of conversation are carelessly penciled, and the precious information probably sent by telegraph. And this is enterprise and a model crop-report.

This use of language, which has no common measure of value, and may mean one thing to the writer and another to the reader, is not the only difficulty with these unsystematic reports. The ground covered by the report is equally indefinite; usually a township, often a county, sometimes a wide district is ambitiously included when any territory whatever is indicated. If a township, the increase stated at 50 per cent. may be correct, and yet the whole county have actually no increase, as has been tested in our recent experience. Then a third difficulty occurs in the different production of different counties, some of which produce a crop by millions of bushels, while others in the same State fail to yield as many hundreds of thousands. Thus, with no definite expression of acreage in the separate reports, and these reports covering unknown areas of territory, or widely different in size, and differing quite as widely in amount of production, it is simply impossible to calculate or formulate an expression of the average meaning of the sum of such reports. It is the sheerest guess-work to indicate from such data whether there is more or less than usual of a crop, unless the unanimity in one direction is almost absolute. The only thing to be done—the only thing that is done—is to read the whole jumble of conflicting matter, and leap rashly to a conclusion which shall embody the general expression made upon the mind. It is a blind trust in intuition—often so blind as to overbear the result of mathematical demonstration, which fails to establish its conclusions.

ENTOMOLOGICAL RECORD.

BY TOWNEND GLOVER, ENTOMOLOGIST.

EXPERIMENTS WITH PHYLLOXERA.—During the past season an experiment has been instituted in order to prove the identity of the *Pemphigus vitifoliae* or leaf-gall-louse, of Fitch, with the *Phylloxera vastatrix*, or root-gall-louse, so injurious at present to the vineyards in France, and in parts of this country also. In March, the Department wrote to Mr. George W. Campbell, of Delaware, Ohio, for specimens of vines infested with the root-gall-louse, *Phylloxera vastratrix*, which he kindly forwarded to the Department in most excellent condition for the experiment—the roots being literally a series of galls or knobs caused by the root-lice themselves living on the roots. These were carefully put

in flower-pots and placed in a large closed case, in a leafless condition, so that no other insects could intrude. Three other perfectly healthy vines from our own greenhouses were then planted, on which there were neither leaves nor root-gall-lice, and placed in juxtaposition with the unhealthy vines. These were tended carefully during the summer, put out foliage, and finally all died, with the exception of one vine, apparently from the *Phylloxera*. During all the time the experiment was carried on, the foliage was examined day by day to see if any leaf-gall-lice made their appearance on the foliage, but not the least sign of a gall could be found, even with a magnifier, on any of the vines, which grew finely until late in summer or early autumn, and put out abundant foliage.

The present month, (October,) the vines having lost their foliage, the whole six were examined, and the roots were found swollen, as if from the effects of the root-lice, but not a single leaf-gall had been produced on any of the leaves. We cannot give the names of the vines, as accidentally the labels were thrown away by the laborer when he removed the dead vines in order to have them and the earth in which they were grown thrown into the furnace, as is always done when noxious insects are discovered, for fear of dissemination of new injurious insects.

It is also to be remarked that the grape-vines in the immediate neighborhood of the infested plants, in the Department grapery, which were mentioned in a previous report, do not show the least symptom of disease, and appear in a perfectly healthy condition.

As, although this experiment was carefully conducted, there may have been some climatic or other cause which prevented the leaf-galls from making their appearance, from the root gall-lice known to be there, as it is stated they are identical, we shall repeat the experiment next year on a larger scale and make the results known to the public.

THE COTTON-WORM.—A question having arisen as to whether the cotton army-worm, *Anomis xylinæ*, (*Aletia Argillasea*, of Hübner,) passes the winter in the egg, caterpillar, chrysalis, or moth state, Prof. A. R. Grote, of Buffalo, at the meeting of the American Association for the Advancement of Science, held at Hartford, in August last, read a very able essay on the subject, in which he stated that he had observed the cotton-worm during five seasons in Central Alabama, and on many different plantations. He states that the earliest period at which he had observed the young worms was the last week in June, and that their appearance was always heralded by the perfect fly, the latter coming to lights in houses at least a week before the worm appeared in the fields; and that the worm is always heard of first to the southward of any given locality. It comes as an army from the south, and the broods arrive consecutively, as long as the season lasts, and that this southern army is killed by the advancing winter and the death of the food-plant—the cotton-plant—on which it feeds exclusively, refusing to eat anything else; and that the specimens of the fly taken in the Northern States have merely followed the water-courses, as the moths are capable of extended flights; and that it originates at the south, and its appearance is due in every instance to a fresh immigration (of the moths) from more southern regions, nay, even farther. Professor Grote concludes that “the insect is not indigenous with us, but is an annual; not a denizen, but a visitant, unable to contend with the variations of our climate; and he believes that the process of artificial extermination may be simplified by limiting the period of successful attack, and doing away with certain proposed remedies. The agent of destruction must be directed against

the first brood in each locality, and concerted action on the part of the planters where the remedy is to be applied will be necessary."

INSECT-INJURIES.—*Cotton-caterpillars*, (*Anomis xylinæ*.)—The influences so injurious to the cotton-crop were likewise destructive of its insect-enemies. More or less annoyance is reported in Beaufort and Richland, South Carolina; in Gadsden, Florida; in Coffee, Hale, and Clarke, Alabama; in Cameron and East Baton Rouge, Louisiana. In Hancock, Mississippi, they visited sea-shore fields which have hitherto escaped their ravages. In Bandera, Texas, they ate the top crop.

Bud-worms.—An insect designated by this popular name injured corn in Greenville, Middlesex, Gloucester, and Matthews, Virginia.

Tent-caterpillars, (*Clisiocampa*.)—This insect was injurious to fruit and forest trees in Jefferson, Mississippi.

Tree-caterpillars, (*Hyphantria textor*. (?))—The insect designated as a tree-caterpillar denuded trees of their foliage in Saint Mary's, Louisiana.

Cut worms, (*Agrotis* sp.)—Some fields of wheat were ruined by this insect in Washington, Illinois. A worm which from description appears to be of this genus, injured grass-crops in Grayson, Kentucky.

Chinch-bugs, (*Micropus* [*Rhyparochromus*] *leucopterus*.)—These insects injured different crops in Pittsylvania, Gloucester, Albemarle, Louisa, and Orange, Virginia. They made their first appearance in the corn-fields of Washington, Arkansas. They are also reported in Medina, Ohio; in Gibson, Grant, Huntington; Madison, Scott, Decatur, Jennings, Wells, Clay, Fulton, Switzerland, Wabash, and Warren, Indiana; in Marion, Cumberland, Douglas, Macoupin, Madison, Washington, Edwards, Piatt, and Shelby, Illinois; in Walworth, Wisconsin; in Gasconade, Cass, Chariton, Laclede, Linn, Vernon, Phelps, Nodaway, Dent, Newton, Perry, Stoddard, Missouri; in Jefferson, Franklin, Anderson, Coffee, Tennessee; in Shelby, Jasper, and Marion, Iowa; in Montgomery, Neosho, Labette, Brown, Crawford, and Woodson, Kansas; in Osage and Richardson, Nebraska. In some of the above localities they were very destructive.

Cabbage-worms (*Pieris rapæ*) destroyed the cabbage-crop of Medina and Fairfield, Ohio. A worm not recognizable from description injured the cabbage-crop of Marion, West Virginia.

Wheat-midge, (*Diplosis tritici*.)—This pest was confounded with the weevil, in Orleans, Vermont. It was also noted in Anderson, Kentucky.

Colorado beetles (*Doryphora decem-lineata*) are demonstrating still farther eastward. They have been heard from in Erie, New York; in Gloucester, New Jersey; in Clearfield, Northampton, Columbia, and Erie, Pennsylvania; in Kent, Delaware; in Baltimore, Dorchester, and Cecil, Maryland; in Greenville, Virginia; in Jefferson, West Virginia; in Clarke, Kentucky; in Barry, Michigan; in Switzerland, Madison, and Decatur, Indiana; in Lincoln, Nebraska.

White grubs (*Lachnosterna fusca*) injured corn in New London, Connecticut, and Grayson, Virginia. In the last-named county as many as 110 worms were counted in a single hill; they also injured grass-crops; they were more numerous than ever before.

Grass army worms (*Leucania unipuncta*) were more or less destructive in Adair, McLean, Livingston, Breckinridge, Taylor, and Ohio, Kentucky; in Marion, Jackson, Edmonds, and Montgomery, Illinois; in Saint Genevieve and Logan, Missouri. In some of these localities their ravages were very severe. Another grass army-worm, probably *Laphrygma* sp., was very destructive in several counties of Tennessee, being

reported in Lincoln, Montgomery, Warren, Wilson, Giles, Dickson, and Cheatham.

Grasshoppers (*Caloptenus spretus*) still continue their ravages west of the Mississippi River. They are reported in Palo Pinto, Cooke, and Gillespie, Texas; in Wright, Sibley, Rock, and Watonwan, Minnesota; in Lyon and Plymouth, Iowa; in Cass, Lawrence, Platte, Pettis, and Jasper, Missouri; in Leavenworth, Clay, Pawnee, Neosho, Allen, Bourbon, Brown, Crawford, Douglas, Ellsworth, Jackson, Ottawa, and Woodson, Kansas; in Webster, Thayer, Osage, Lincoln, and Cass, Nebraska; in San Luis Obispo, California; in El Paso and Weld, Colorado.

The following from Labette County, Kansas, will give some idea of its ravages:

The farmers in my county had their land for wheat prepared in good time, and in a better condition than I ever saw. On the 6th of September the grasshoppers made their appearance all over the county. Farmers became alarmed and did not sow any wheat. About the 18th to the 20th they appeared to go away. Farmers commenced sowing, and got in about two-thirds of their crop. On the 28th and 29th they came the second time, filling the air, reminding one of a snow-storm in December. Some who had sown early had wheat up nice, but you cannot find a spear in any place. Wheat which was sown before the grasshoppers came the first time has been eaten down, until the grain has finally ceased to grow. I am candidly of the opinion that every acre which is sown to-day in this county will have to be sown again. There is no other chance for it, and the great trouble will be that so many of our farmers have sown all their seed and are not able to buy again. And what will they do? Some who have not been two years on their claims are leaving them and going over into Missouri and Arkansas to winter—to find something to live upon.

CHEMICAL MEMORANDA.

BY WM. MCMURTRIE, CHEMIST.

CURIOUS DEPOSIT OF PHOSPHATIC MATERIAL.—Some months ago Judge W. Schley, of Savannah, Ga., sent to this Department a sample of material with a statement to the effect that it had been discovered in considerable quantity in a cave near the city above mentioned. He gave no further description of its location or surroundings, but the sample sent was nearly white, pulverulent, becoming lumpy upon compression, and appeared to be the result of deposition. Preliminary tests led to the conclusion that it was of considerable agricultural value, and we consequently made a complete analysis, which determined the following composition:

Insoluble silica, sand, &c.....	6.20	Chlorine.....	Trace.
Soluble silica.....	0.60	Nitric acid.....	Trace.
Lime.....	14.32	Carbonic acid.....	Trace.
Magnesia.....	3.43	Moisture.....	16.10
Alumina.....	13.53	Organic matter, {	containing 0.119
Peroxide of iron.....	7.34		per cent. nitro-
Soluble phosphoric acid.....	8.40		gen, equivalent
Insoluble phosphoric acid.....	6.10		to 0.1445 per
Potassa.....	2.53		cent. ammonia, 16.25
Soda.....	0.375		
Sulphuric acid.....	3.87		99.045

The high percentage of soluble phosphoric acid in this material is somewhat surprising, yet this, together with the fair percentage of nitrogen and potassa it contains, and its very favorable mechanical condition, renders it immediately available for application to the soil for almost any kind of crops. The planters of the section may consider themselves fortunate in having in their midst so valuable a source of fertilizing material, if, indeed, development shows that it exists in large quantity.

INFLUENCE OF FORESTS UPON RAIN-FALL.—In a note upon this subject presented to the French Academy of Sciences * by MM. L. Fautrat and A. Sartiaux, they give the results of some interesting observations made in the forest domain of Hallette and upon a neighboring cultivated section of country. Becquerel declares that forests increase the amount of rain-fall, while Vaillant insists that they diminish it, and Mathieu concludes from his researches that the amount of rain-water received by forests is equal to or even greater than that received by the open country. Dausse states that rain is formed when warm and moist winds encounter cold strata of air; the air of forests being cooler and more humid than that of uncovered soil, a greater quantity of rain should fall in such localities. In order if possible to settle the point thus disputed, the authors have made observations: first, above a wooded section; and, second, at the same elevation at a distance from this section so slight that the differences observed can be due to the influence of the forest alone. In order to carry out these observations they placed, at an elevation of about 6 meters above a collection of oaks and elms which were of about twenty years' growth and about 8 or 9 meters high, a pluviometer, a psychrometer, an evaporimeter, and maximum and minimum thermometers, to determine the quantity of rain-fall, the amount of moisture in the air, and the variations of temperature and evaporation. At a distance of 300 meters from the forest, at the same elevation, the same instruments were placed under the same conditions over an open country.

The following table shows the results of their observations:

Quantity of rain-fall.

Date.	Above wooded section.	300 meters from wooded section.
	<i>Millimeters.</i>	<i>Millimeters.</i>
1874—February	18.75	18.00
March	15.00	11.75
April	27.50	25.75
May	39.25	35.50
June	51.25	48.25
July	40.75	37.75
Total	192.50	177.00

Difference in favor of forest, 15.50 millimeters.

Degree of saturation of the air.

Date.	Above the wooded section.	300 meters from wooded section.
	<i>Centimes.</i>	<i>Centimes.</i>
1874—March	71.1	70.0
April	64.3	64.2
May	64.1	60.4
June	60.9	60.1
July	54.6	53.8
Total	315.0	308.5
Average	63.0	61.7

Difference in favor of forest, 1.3 centimes.

* Comptes rendus, t. lxxix, 409.

From the results of these observations the authors conclude that if they were carried out during the entire year, and yielded proportionally similar results, there is proof sufficient that forests possess an advantage over cultivated country in the influence exerted upon rain-fall.

PETERSON'S METHOD OF MEADOW-CULTURE.*—In May of last year such a lively discussion was aroused and so many different opinions expressed with regard to the value of the Peterson method of meadow culture, at the congress of meadow culturists, in Wittkiel, (Schleswig,) that Dr. Oemler and E. Fuchs were induced to undertake an investigation, botanically and by means of analytical chemistry, to determine the differences in the growth of grasses upon meadows treated according to the Peterson system and upon those left in the natural condition. In their work they have noted the character of the soil, the different species and the number growing on a given space, the length of the taller and shorter specimens, the total weight and the general composition of the mixed grasses. They also determine the difference between the actual amount of nutriment produced from a given area when crops almost purely of grasses are grown, and when mixtures of grasses with lucerne or with Swedish clover are grown.

The first observations were made upon an area containing nearly pure grass. The soil was a humus loam, with a subsoil of tolerably fatty clay. Eighteen square feet produced 10 pounds, the average number of plants for this space being about 431, per square foot. The following table represents the number of each variety present, with their greatest and least lengths :

	Number of plants.	Length of plants.	
		Longest.	Shortest.
		<i>Centimeters.</i>	<i>Centimeters.</i>
<i>Festuca pratensis</i>	100	98.5	85.0
<i>Holcus lunatus</i>	66	105.5	40.0
<i>Poa pratensis</i>	64	98.0	50.5
<i>Phleum pratense</i>	59	81.2	43.5
<i>Arrhenatherum elatius</i>	41	106.0	98.0
<i>Dactylus glomerata</i>	32	88.0	51.0
<i>Lolium perenne</i> , fine	24	91.0	71.0
<i>Lolium perenne</i>	22	92.5	15.0
<i>Alopecurus pratense</i>	14	.....	.....
<i>Rumex acetosa</i>	4	.....	.....
<i>Ranunculus repens</i>	3	.....	.....
<i>Poa annua</i>	2	.....	.....
	431		

* Die landwirth. Versuch. Stat. Bd. xvii, 211.

One hundred parts of this mixture of grasses contain—

	In fresh condition.	Dried.
Water	75.99	12.62
Raw fiber.....	6.84	24.80
Ash.....	1.55	5.64
Nitrogenous matter.....	2.58	9.37
Fat	1.04	3.80
Non-nitrogenous matter.....	12.09	43.77

Nitrogenous matter : non-nitrogenous matter :: 1 : 5.0.

Raw fiber : entire nutriment :: 1 : 23..

In the first test the plot selected was in the lowest portion of the meadow, but in the second test the plot was selected in the highest portion, the grass in this case being mixed with lucerne.

The soil of this plot is dry loam, with a subsoil of stiff red loam ; 18 square feet produced $11\frac{1}{4}$ pounds of material, with an average of 390 plants per square foot.

The observations resulted as follows :

	Number of plants per square foot.	Longest plants.	Shortest plants.
		<i>Centimeters.</i>	<i>Centimeters.</i>
Lolium perenne, (rye grass).....	167	94.2	16.4
Lolium perenne, fine	92	70.5	19.3
Arrhenatherum elatius	79	112.5	72.0
Festuca pratensis	17	85.7	63.5
Poa pratensis, (blue-grass).....	8	.....	.....
Bromus mollus, (cheat).....	8	.....	.....
Medicago sativa, (lucerne).....	5	.....	.....
Dactylus glomerata, (orchard-grass)	4	.....	.....
Stellaria holostea	4	.....	.....
Alopecurus pratense	2	.....	.....
Phleum pratense, (timothy)	1	.....	.....
Holcus lunatus.....	1	.....	.....
Crepeanthemum Lucanthemum, (daisy).....	1	.....	.....
Taraxacum officinale, (dandelion).....	1	.....	.....

One hundred parts of this mixture contain—

	Fresh condition.	Dried condition.
Water	79.24	9.06
Raw fiber.....	5.91	25.38
Ash.....	1.26	5.53
Nitrogenous matter.....	2.99	13.12
Fat	0.82	3.60
Non-nitrogenous matter.....	9.78	42.81

Nitrogenous matter : non-nitrogenous matter :: 1 : 3.6.

Raw fiber : entire nutriment :: 1 : 2.3.

In the third test a plot of average elevation was chosen, this being covered with grass with admixture of Swedish clover. The soil was somewhat humous, but otherwise the same as that of the other plots. The product amounted to 12½ pounds per 18 square feet, with 320 plants per square foot, the latter being distributed as follows :

	Number of plants per square foot.	Length of plants.	
		Longest.	Shortest.
<i>Arrhenatherum elatius</i>	103	92.5	40.4
<i>Lolium perenne</i>	42	92.3	17.5
<i>Phleum pratense</i>	40	65.0	49.3
<i>Lolium perenne</i> , fine	40	65.6	23.5
<i>Festuca pratensis</i>	29	86.0	52.0
<i>Poa pratensis</i>	21	98.5	62.0
<i>Holcus lunatus</i>	19	103.0	36.0
<i>Dactylus glomerata</i>	9	68.5	19.0
<i>Alopecurus gericulatus</i>	7	84.0	52.0
<i>Alopecurus pratensis</i>	5	-----	-----
<i>Trefolium hybridum</i>	5	-----	-----

One hundred parts of this mixture contain—

	Fresh.	Dried.
Water	76.02	10.00
Raw fiber	7.72	23.92
Ash	2.27	8.53
Nitrogenous matter	3.20	12.02
Fat	0.97	3.65
Non-nitrogenous extractive matter	9.82	36.88

Nitrogenous matter : non-nitrogenous matter :: 1 : 3.4.

Raw fiber : entire nutriment :: 1 : 1.81.

The number of plants, in case of grasses, is naturally greater for a given area than in case of fodder-plants, since the latter require more space for their growth; but upon comparison of the analyses accompanying the different tests, it will be found that the percentage of nitrogenous nutriment is not only higher, but that the ratio between the nitrogenous and non-nitrogenous material is lower and more favorable. From a Prussian acre (0.6 acre) was produced, in test I, about 14,400 pounds of grass, containing 371.5 pounds nitrogenous matter; while in tests II and III were collected 16,200 pounds, containing 484.38 pounds nitrogenous matter, and 18,000 pounds containing 576 pounds nitrogenous matter. The authors are in favor, also, of cultivation of lucerne and clover, since their exhaustive effects are overbalanced by other effects more favorable.

The meadow which had been left in the natural condition was adjacent to that to which the Peterson method had been applied, and although the grass was overripe, which favored to a certain extent the method in question, yet the differences are quite marked. The soil in the latter case is a heavy loam, with a somewhat loose subsoil. The vegetation con-

sisted in part of good grasses, with admixture of carices, juncaceæ, and dicotyledonous swamp-grasses, especially *Caltha palustris*. Unfortunately, late mowing prevented as extensive investigations in this as in previous cases.

The matter collected in three tests contained, in the fresh and the air-dried condition, the following constituents :

One hundred parts of this mixture contain—

	Fresh.	Air-dried.
Water.....	59.73	6.61
Raw fiber	12.34	28.60
Ash.....	2.46	5.71
Nitrogenous nutriment.....	3.84	8.90
Fat	1.16	2.70
Non-nitrogenous extractive matter.....	20.47	47.48

Nitrogenous matter : non-nitrogenous matter :: 1:563.

Raw fiber : entire nutriment :: 1:206.

The low percentage of water in this sample was due partly to its being too ripe, and partly to the fact that it had been mowed for some time.

The plants collected from the natural meadow were *Ranunculus Flammula*, *Senecio aquaticus*, *Spiræa ulmaria*, *Caltha palustris*, *Lychnis flos-culi*, *Lysimachia nummularia*, *Galium palustre*, *Equisetum palustre*, *Juncus compressus*, *Carex glauca*, *Briza media*, *Aira caespitosa*, *Holcus lanatus*.

The chemical composition of this mixture was—

	I.	II.	III.
Water.....	78.22— 7.83	79.82— 6.42	81.56— 6.95
Raw fiber	6.33—26.80	5.23—24.29	5.49—27.75
Ash.....	1.71— 7.25	2.05— 9.40	1.32— 6.63
Nitrogenous nutriment.....	1.21— 5.16	1.46— 6.81	1.46— 7.37
Fat	0.82— 3.48	0.75— 3.50	0.73— 3.62
Non-nitrogenous extractive matter.....	11.71—49.48	10.69—49.58	9.44—47.68

Nitrogenous matter : non-nitrogenous matter :: 1 : 10.4 : 1 : 7.83 : 1 : 6.96.

Raw fiber : entire nutriment :: 1 : 2.17 : 1 : 2.46 : 1 : 2.11.

The comparison of these tables with the preceding, by means of the ratios given in the lower portion, is easily made. A fact which seems worthy of notice is that in all of the six analyses the figures representing the entire nourishment in the ratios are included within the limits 1.8 and 2.4, and these limits will be observed in the following analyses.

The following tables are the results of analyses of materials collected from a meadow, cultivated according to the Peterson method, and an adjoining one in the natural condition, near Cappeln. In the first lot, collected the following plants—

Arrhenatherum elatius	105 centimeters high.
Lolium perenne.....	90 centimeters high.
Phleum pratense.....	84 centimeters high.
Holcus lanatus.....	102 centimeters high.
Tripolium hybridum.....	—

	Fresh.	Air-dried.
Water	79.71	8.91
Raw fiber	4.77	21.40
Ash.....	1.65	7.43
Nitrogenous nutriment.....	1.58	7.12
Fat	0.89	4.00
Non-nitrogenous extractive matter	11.40	5.14

Nitrogenous matter : non-nitrogenous matter :: 1 : 7.77

Raw fiber : entire nutriment :: 1 : 2.90.

COTTON LINT AND SEED.—A recent essay by William J. Land, sent to the Boston Journal of Chemistry, contains analyses representing the composition of cotton-seed and cotton-lint to be as follows:

	Cotton-lint.	Cotton-seed.
Potash.....	50.371	36.712
Soda.....	2.672	0.839
Magnesia.....	11.191	15.600
Lime.....	7.912	4.609
Phosphoric acid.....	4.285	31.093
Sulphuric acid.....	4.112	3.337
Oxide of iron and alumina.....	1.508	1.113
Oxide of manganese.....	.714	
Chlorine.....	2.213	0.507
Sand and charcoal.....	15.112	6.190
	<hr/> 100.000	<hr/> 100.000

The lint contained 0.855 per cent. mineral matter; and the seed, 3.59 per cent.

The same journal also contains the conclusions of a report of experiments with different fertilizers on the cotton plant by Mr. E. M. Pendleton. They are as follows:

That no compound which does not contain soluble phosphoric acid will pay upon the worn-out soils. That 200 pounds of a good ammoniated superphosphate is about the quantity to be used on an acre of cotton; but with bad cultivation it will hardly pay at any price. That cotton-seed makes a good fertilizer when used in connection with good superphosphate.

QUANTITY OF WATER CONSUMED IN GROWTH OF WHEAT.*—Experiments made at the observatory of Montsouris during the year 1873 show that wheat sown in pots filled with soil from the park and watered each day consumes by way of transpiration from germination until maturity 1,796 grains of water to produce 1 gram of grain. Calculations consequent upon this result indicate that 30 hectoliters of grain grown upon an area of one hectare requires for its production a quantity of water corresponding to a stratum of 0.432 millimeters in thickness, and if this amount be added to the amount of water removed from the soil by evaporation it forms a total, higher than the average amount of rainfall for the entire year in the vicinity of Paris. It would therefore seem that the yield of wheat in the neighborhood of Paris must be limited by the volume of water generally available in the fields.

Woodward and Lawes' experiments indicated that the relation between the amount of water consumed and the weight of grain produced may vary with the nature of the soil and with the quality and quantity of fertilizers which may have been employed. This idea was made the subject of experiment at the same place during the year 1874, and the conclusions arrived at were, that "the fertility of a soil can never be absolute. It changes according to the climate, and even from one year to another, according to the sum of the light, heat, and moisture it receives. The quantity of water necessary to produce a crop cannot be considered any more absolute. It depends upon the sum of the useful mineral matters with which the water may be charged. To a certain extent the water may supply the fertilizer, and to a certain extent the fertilizer may supply the water. This, when suited to the soil, produces a decided economy in the mass of water consumed."

*Comptes Rendus, t. lxxix, 203.

In the vicinity of Paris a yield of 30 hectoliters per hectare should, under ordinary conditions, cause a consumption of water which, added to that lost from the soil by solar evaporation during the time included between the seed-time and the harvest, should make a total very near the average rain-fall it receives. We have, therefore, good authority for the employment of water for the same purpose as fertilizers.

BOTANICAL NOTES. +

BY DR. GEO. VASEY.

Pentstemon is a North American genus of herbaceous perennial plants of the order *Scrophulariaceae*, comprising within the limits of the United States over sixty species, a large number of which are showy and well worthy of cultivation. They have, however, received very little attention in this country, whereas in England our species have been sought after, and quite a number of them brought into successful cultivation. The genus is mostly confined to the portion of country west of the Mississippi; only two or three species having a somewhat wide range east of that river. The larger number are found on the elevated plains of the Rocky Mountain region, some at high altitudes in the mountains, others in Arizona, New Mexico, and California, whence the genus extends into Mexico. We will enumerate some of the more showy species, which are hardy, and deserving of more attention among horticulturists and florists.

Pentstemon Digitalis, Nutt.—This species grows in the Southern States, and also in the southern portion of the States bordering the Ohio River on the north. It has a mass of large, smooth, radical leaves, with stems rising 3 to 4 feet high, rather leafy, with opposite sessile leaves; the upper ones are large, ovate, and clasping below, becoming oblong or lanceolate, and a rather large and showy much-branched panicle of flowers, which are 1 inch or more long, somewhat clammy, and of a pale blue or white color. The specific name is derived from its resemblance to the fox-glove.

Pentstemon grandiflorus, Fraser.—This species is more showy than the preceding; the flowers are about 2 inches long, varying in color from purple to white; the panicle is about 1 foot long and rather narrow; the leaves are remarkably thick, smooth, and of a bluish-green color. This species ranges from Kansas northward, and is found also in the vicinity of the Mississippi, from Oquaka, Ill., to Saint Anthony's Falls, Minn.

Pentstemon Cobaea, Nutt.—This is a smaller species than *P. grandiflorus*, with shorter stems and panicle, but the flowers equally large and more bell-shaped above. It is found from Kansas to Texas.

Pentstemon glaber, Pursh.—This species grows commonly about 1 foot high, with large flowers in a somewhat one-sided close panicle, the whole plant very smooth, the leaves thick and entire. The flowers are a bright purple. There are several varieties which extend over a large region of country, from Washington Territory and the Upper Missouri to Nevada, Utah, Colorado, and south to Mexico.

Pentstemon cyananthus, Hook., is a closely-related species, with a more slender stem and shorter panicle. Found in Wyoming and Utah.

Pentstemon barbatus, Nutt.—This species is remarkable for its tall

slender stems, its narrow linear cauline leaves, and the long loose panicle of tubular scarlet flowers, which are about $1\frac{1}{2}$ inches long. Its range is from Colorado to New Mexico and Arizona.

Pentstemon acuminatus, Dougl., grows from 1 to $1\frac{1}{2}$ feet high, is very smooth, with thick, glossy, bluish-green leaves, and a long panicle of blue or purple flowers, which are nearly an inch long. It is quite variable in form and size, and is found from Washington Territory to Arizona.

Pentstemon centranthifolius, Benth., is a species with tubular crimson flowers, resembling *P. barbatus* in general appearance.

Pentstemon Eatoni, Gr., and *P. Palmeri*, Gr., are new species discovered within a few years. They have been introduced into England and were last year figured in the Gardener's Chronicle, (London.) The first-named is near *P. centranthifolius*, and the last near *P. Cobaea*. There are many others less known and mostly of smaller size, but of considerable beauty, which, it is probable, will eventually find their way into cultivation.

The Engineer Department of the United States Army has just issued a catalogue of plants collected in the years 1871, 1872, and 1873, under the explorations and surveys of Lieut. George M. Wheeler. The catalogue is in two parts; the first is a report by Mr. Sereno Watson upon the collections made in 1871 and 1872, in Nevada, Arizona, and Utah; the second part is the report of Dr. Rothrock upon the plants collected in Central Colorado, in 1873, by Mr. John Wolf and himself. The first report embraces about 500 species, of which about 14, are new. The second report embraces about 1,150 species of Phænogams, of which 7 or 8 are considered to be new species, and about 125 species and varieties of Cryptogams. This catalogue will prove of much interest to botanists, and in connection with the report of Mr. Watson on the exploration of the fortieth parallel, and the synopsis of the flora of Colorado by Profs. Porter and Coulter, will render our knowledge of the region explored very full and satisfactory.

MICROSCOPIC OBSERVATIONS.

BY THOMAS TAYLOR, MICROSCOPIST.

+ CRANBERRY ROT AND SCALD.—During the present year the Department has received numerous letters from cranberry growers, calling attention to a disease of the cranberry known as rot or scald, which has appeared, especially, in the cranberry plantations of New Jersey, during the last three years. The following letter, placed in the hands of the Commissioner of Agriculture by Hon. S. A. Dobbins, M. C., shows the importance and necessity of a thorough investigation of the disease, with a view to the discovery of its cause and the means of preventing its recurrence:

TRENTON, March 12, 1874.

DEAR SIR: You are aware that the cranberry-culture has become a very large business in most of the sea-board counties of this State. The failure of the crops for the last two or three years has been a serious loss to those counties, and threatens to affect injuriously their productive interests, perhaps for many years to come. Various opinions have been entertained with regard to the blight of this important crop. Some

have attributed it to animalcules, others to climatic causes, but as yet the true cause has not been determined. Much anxiety is felt by hundreds who have invested in the cultivation of this fruit, and the New Jersey Cranberry Association, composed of a large number of respectable citizens of the counties of Cape May, Atlantic, Ocean, and Monmouth, at their late session, desired me to write to you on the subject.

We are informed that the Department of Agriculture at Washington is in the habit, when requested, of sending some scientific person to make a critical analysis and examination in such cases, with a view to ascertain the *real cause* of the rot, and devise, if possible, such treatment as will prevent it.

You will greatly oblige many of your personal friends and fellow-citizens if you will make inquiry, and procure the services of a proper scientist, to make the examination desired. It is said that the Department is very ready to make such investigations, and will, when occasion requires, send a competent person, free of charge, for the purpose.

Yours truly,

GEO. F. BROWN.

Hon. S. A. DOBBINS, *M. C.*

I think it probable that in Ocean County, New Jersey, the loss on the cranberry-crop for the last year approximates \$100,000; that is, the loss by what is familiarly called the "scald."

G. F. B

On the 10th of July last the president of the New Jersey Cranberry Growers' Association wrote to the Department as follows:

BORDENTOWN, N. J., July 10, 1874.

DEAR SIR: At the last meeting of the New Jersey Cranberry Growers' Association, Dr. George Goodale and myself were appointed a committee to procure, if possible, a scientist from the Department of Agriculture to investigate the cause of the cranberry rot, which has been so fearfully destructive in some portions of our cranberry region. If consistent with your views, we should be pleased to have a suitable person sent from your Department to meet us at Philadelphia, for the purpose of making arrangements to visit some of the principal plantations affected with this disease, and to suggest, if possible, a remedy.

Respectfully, yours,

JOHN H. BRAKELEY.

Hon. FREDERICK WATTS,
Commissioner of Agriculture.

These letters were referred to me by the Commissioner of Agriculture, with instructions to make the desired investigation. Previous to visiting the cranberry plantations, I deemed it best to make an examination of the healthy and the unhealthy vines, their roots and fruit, with samples of the soils in which they grew, and now present a preliminary report of the results of my investigations. I accordingly requested A. J. Rider, esq., of Atsion, Burlington County to forward to this Department such specimens as were necessary for my purpose. Two specimens of vines, one healthy the other unhealthy, were in a short time received by the Department, and a specimen of the soil in which each plant grew. An examination of the roots of each vine showed that the one which bore rotting fruit had much larger and darker roots than the other. The peaty muck in which the healthy plants grew had a pleasant odor, and was not in a fermenting condition, while that of the unhealthy plant was in a condition of fermentation, and had the odor of sulphuretted hydrogen. A second set of plants was received, with specimens of the soil in which they grew. It was again observed that the vines on which unhealthy berries grew had darker and larger roots than those which bore healthy fruit, and that the soil of the latter was odorless, while that of the former had a bad odor, and was in a fermenting condition. These facts led me to believe that the sour condition of the soil was the primary cause of the rotting of the berries.

On the 22d of July last, I visited Cranberry Park Station, Atsion,

Burlington County, New Jersey, in company with the Rev. J. H. Brakeley, President of the New Jersey Cranberry Growers' Association, Mr. A. J. Rider, secretary and general superintendent of the Cranberry Park Company, and Messrs. E. W. Crane, of Caldwell; C. G. Rockwood, of Newark; N. R. French, of New York; and Japhet Alston, of Pemberton, all directly interested in cranberry-culture, and made a careful examination of the condition of the soil, the mode of cultivation, the roots of the vines, their foliage and fruit, the construction of water-dams, ditches, &c., at that place.

The plantations of the company comprise about 130 acres of vines, the greater part of which were set out in the year 1869. In 1871 there was a light crop, partly rotted; in 1872 half a crop, and nearly all rotted; in 1873 a full crop, and nearly all rotted, only 300 bushels of sound fruit being picked out of a total crop estimated at 10,000 bushels. No fertilizers were used till the spring of 1873, when sand and plaster were applied to the higher portions of the land, a small area being at the same time treated with a coating of decomposed turf. No rain fell after these fertilizers were applied until June 12, when rot began. The seasons of 1872 and 1873 were noted at this particular locality for protracted droughts during June and July.

In the fall of 1873, sixty acres were drained, by cutting ditches about two rods apart, and a coating of sand was spread over the vines. The outlets and feeding ditches were opened to give free circulation of water, as well as thorough drainage.

Where foliage was destroyed last year by the vine-worm, there was very little fruit; where plaster was applied, with a layer of sand over it, the vines looked healthy and had new rootlets.

Several other plantations in the same vicinity were examined, including those of Mr. Miller and Mr. Rockwood. I visited Bricksburgh, Ocean County, July 24, accompanied by Messrs. E. W. Crane, A. J. Rider, Mr. Teller, I. Foster, F. M. Todd, C. Holman, Dr. Merriman, and the editor of the Times and Journal of Bricksburgh, and made an examination of several cranberry plantations in this neighborhood, commencing with that of Dr. Merriman, two miles southwest of the village. We found the berries very thickly set on the vines where the blossoms had not all disappeared, but traces of the rot were discernible on this plantation. I made a careful examination of the nature of the soil, the roots of the vines, and the degree of acidity of the fruit from the different portions of the bog. Where guano had been applied a marked improvement of the foliage and roots was visible. In answer to an inquiry made by me whether any of the growers present had given attention to the condition of the soil and of the roots of the vines, a unanimous answer was given in the negative. On the afternoon of this day our company was increased by the arrival of Colonel Goodrich, of Stockbridge, Mass., and the Rev. A. H. Dashiell, of Bricksburgh, both of whom are interested in cranberry culture. We visited the plantations of Mr. J. W. Campbell, the Rev. Isaac Todd, and Mr. Ferre, all being connected and forming one continuous plain. This extensive bog was formerly a mill-pond. The soil of such places is generally found to be very favorable for cranberry cultivation, which proved to be the case in this instance. These three plantations have never failed to produce healthy crops. An examination of the soil proved that the peaty matter of which it principally consists, was well decomposed. Our attention was directed to one small portion of the pond where about two years ago the berries rotted. I examined this place, by digging up

the ground, and found that the soil was not well decomposed, and that the muck was in a condition of active fermentation, giving off strong odors of sulphuretted hydrogen. The roots of the vines here were unusually large, matted, and of a dark, unhealthy color.

We next visited the plantation of Messrs. C. G. and E. W. Crane, at Long Swamp, consisting of about thirty acres. This plantation had been recently laid out, and was provided with the latest improvements. The ground here proved generally good, although in some places there were decided indications of sour, fermenting soil. The Darron plantations were next examined. The soil here is of a mixed character, some portions of it proving to be well decomposed and without odor, while other portions were in a state of fermentation. It was observed that the rot was confined to the parts indicating fermenting soil, while the sound berries grew on the well-decomposed soil, which has generally a pleasant odor.

We next visited Butterfly Bridge plantation. Here, a plantation, laid out some years ago by F. M. Todd, esq., in the best manner, and now belonging to different parties, was next visited. The vines on this plantation rotted in spots last season. An examination of these spots showed undecomposed peat, and unhealthy roots, the latter being very large and closely matted. Having stated to the committee of cranberry-growers accompanying me that fermenting soil and stagnating water were probably the principal causes of the rot, I was informed that, although my theory held good thus far, there was a neglected cranberry plantation, known as the Carey Bog, near Bricksburgh, the water of which they believed to be stagnant, as it had no visible outlet, but notwithstanding, the fruit of the bog had not been affected by the disease. An examination of the bog showed that the water which flooded it was perfectly fresh, being supplied probably by means of springs, and passed off through the sand. The whole surface was covered with a dense growth of moss and weeds, interspersed with cranberry plants. The cranberry roots were growing in the moss and confined to it. They were short, of a whitish color, and very healthy; sand to the depth of eight inches had at one time been spread over the peat muck. I cut through it, and found it to be very pure and free from any odor. This bog very much resembles a wild bog, being wholly neglected. I have also examined the roots of the cranberry plants as found growing in the wild state, and in all cases have found them to be healthy and similar to these. I have thus far failed to discover any healthy cranberry vines growing in stagnant water.

I next proceeded to Tom's River, in company with General Morris, Dr. Merriman, S. H. Shreve, and A. J. Rider, esqs. We visited the Berkeley plantation, one and a half miles from Tom's River. This plantation contains about fifty acres of vines, which appeared very promising. They had been planted about nine years. The berries, at the date of our visit, were slightly affected with rot. On my first examination of the soil I detected imperfect roots, but no sulphuretted hydrogen. On going deeper, the latter was found in abundance at a depth of about two feet six inches. The soil of this plantation is of the variety known in New Jersey as savanna, consisting of sand, with a slight trace of vegetable matter. An analysis made in the laboratory of this Department, shows that the proportions are, sand, 97 parts; peaty matter, 3 parts. Mr. Shreve informed us that a layer of peat about two inches in thickness had been spread over the surface of the bog. From some cause this peaty matter was in a state of fermentation, and its odor very bad.

We were informed that gas-lime had been spread over portions of this plantation with but little effect. In my opinion, the use of stone or shell quick-lime would produce more important results. The water in the ditches was highly impregnated with iron—probably as bicarbonate of iron—which is soluble in water. Gas-lime is composed mostly of sulphide of calcium; that is, a mixture of sulphur and calcium. It also contains caustic lime, but in limited quantity. When gas-lime is exposed for a considerable period to the action of rain and air, a large portion of the sulphide is converted into sulphate of lime, or land plaster. I consider that, for the purposes required, caustic shell or rock lime would prove more profitable, for several reasons.

We next visited the plantation of General Morris, of Bogville. His vines are of only four years' growth, and the cranberries have rotted each year. An examination of the peat revealed the presence of sulphuretted hydrogen, which was also found in the substratum of the savanna bottoms of this plantation. One-half of the plantation was covered with sand taken from an adjoining cultivated field, the particles of which were very fine, and it probably contained clay. The vines covered with this fine sand were stunted in growth, while those sanded with coarse sand, taken from an uncultivated bank near by, were very thrifty and in full bearing. Samples of these two kinds of sand have been procured, and will be analyzed in the laboratory of the Department.

I also visited the plantation of A. T. Finn, of New York, consisting of thirteen acres. The vines appeared healthy and were fruited, although the berries were rotting. An examination of the soil of this bog revealed the presence of fermentation and unhealthy roots. We were informed that the vines last year appeared healthy, and yet the berries rotted so badly that but twenty-five bushels were harvested from thirteen acres.

We next visited a very thrifty bog, known as the Shreve plantation, near Tom's River. This bog has always borne fruit free from rot. An examination proved that all the conditions were favorable, the soil being well decomposed and free from odor, and the roots small and healthy in appearance. From this point I proceeded to West Creek, and visited the extensive and highly cultivated plantations of Col. D. R. Gowdy, and also the Eagle Company plantation. I found here good and bad soil, plenty of water, and a refreshing, cool breeze blowing over the surface of the grounds, the latter circumstance being of common occurrence. Mr. Gowdy claims to have a very superior short vine which is known as the "Gowdy vine." He is one of the oldest cultivators in the State of New Jersey, and has been very successful. The land under cultivation at this place is generally good, although I found many spots on it in a state of fermentation.

A diversity of opinion seemed to prevail at this place between Mr. Gowdy and the Eaglewood Company as to the best form and depth of ditches and the width of the lands between them. The irrigation of cranberry land is of the highest importance at all times, but especially, when the soil is sour. The Eaglewood Company lately ditched their bogs very deep, and on the day of my visit to their plantation I observed that the water in the ditches did not come within 18 inches of the roots. There were probably about five inches of sand over the peat-bottoms. I examined the roots of the vines and found them baking in pure, dry sand at a very high temperature. The overseer in charge informed me that they had been in that condition for sometime, and that having no instruction to fill up the ditches with water he was powerless to act. This was probably the condition of about eighty acres during the

hottest days of August last. The peat of this plantation is several feet in depth, (cedar bottom,) and is capable of still higher cultivation owing to the general mellow condition of the soil and its being well supplied with water. I do not consider that the extra depths of these ditches will prove injurious to the vines, provided they are supplied with substantial ditch-gates to enable the person in charge to regulate the height of water in the ditches at will.

With the committee I next visited the bog of Mr. Goodell, near the village of Bricksburgh. We stated the object of our visit to the proprietor, and with his assistance we commenced an investigation. The vines had been treated with a light sprinkling of lime over their surface for the last three years, and he believed that the treatment in question destroyed worms and modified the rot; but on looking over his grounds we found many examples of rotting berries. With his permission we dug up the first clump of vines upon which such berries were found. The roots were very large, and were matted and dark in color. At a few yards' distance from the first plants removed, we found a very healthy clump of vines, the berries of which were sound and of a good, acid taste. The roots of these vines were found to be very small, and much whiter than the first examined. On seeing this Mr. Goodell exclaimed, "Something wrong with the roots," although he was not aware that I had already reached the same conclusion. He complained that the soil was frequently sour, and had sometimes the odor and taste of acid. I was frequently informed during the early part of my investigation that the cranberry on Cape Cod is not subject to rot. Indeed, persons from that section assured me that rot, or scald of the berry, is wholly unknown in that region. As the statements seemed trustworthy, I suggested to the cranberry growers of New Jersey, that an examination of the conditions under which the cranberry-vine was said to be so successfully cultivated there, might lead to practical benefits. With this view I procured proper introductions to the leading cranberry growers of that region, and proceeded to Cape Cod, arriving at Harwich Centre about the 26th of July. The first plantations visited were those of Captains Robins and Small, both extensive and experienced growers of cranberries. I also visited the plantations of Dr. Pitcher and others, at Hyannis. Contrary to expectations and reports, I found the rot of the cranberry to be well known on Cape Cod, and on just such soil and under the same general conditions as in the vicinity of Bricksburgh, N. J. Fermenting peat-bottom, or fermenting sanded grass-bogs, subject to back water, large matted roots, and berries, either bitter or of the flavor of flat acid—such were the circumstances under which diseased berries were uniformly found. But, as in New Jersey, there are on Cape Cod very fine plantations free from disease. Although nearly all of the plantations of Captains Robins and Small indicated high cultivation, the favorable condition of their soil and surroundings had as much to do with the production of good crops as had the attention bestowed on them. Many patches which had proved a failure were pointed out to me during my investigations on Cape Cod, although in some cases more money had been wasted on them in bringing them under high cultivation than had been spent on the successful bogs. My examination has shown, thus far, that in every instance sour soil, high temperature, and large, dark, matted roots are the invariable attendants of rotting berries.

Much diversity of opinion exists on Cape Cod, as well as in New Jersey, as to the best kind of peaty bottoms to be used for cranberries. I have found successful cultivation of this crop on cedar and maple

bottoms, the waters of which were charged with bicarbonate of iron in solution. Not unfrequently would the peat be found six feet in thickness. Captain Small has a successful plot, consisting of coarse, sharp sand, deeply colored with iron. The bed of sand is 18 inches in thickness, and rests on "hard pan," a solid bed of bog-iron. Such iron basins are formed from the precipitation of iron held in solution in the water which flows over the bog land. Captain Small informed me that, on some parts of Cape Cod beach, cranberries grow successfully on pure sand when provided with an adequate and constant supply of peaty water. Much stress is placed on the quality of sand by all cranberry growers. It is claimed by all with whom I have conversed on the subject, that coarse, clean, sharp sand is best adapted to the growth of the vines, and my own experience coincides with this view. In some cases only an inch of sand is placed over a peat bottom, and then it is planted with vines, the roots growing directly in the muck. In other cases as many as 10 inches of sand have been placed over the muck or peat, the growth of roots in such cases being confined wholly to the sand, which, however, conveys the soluble humus of the peat to the roots of the plants. There is always a rankness of root and vine growth when the vines are planted directly in peat, and as the growth of plants is continued longer under such conditions they are longer in bearing their fruit. The same remarks apply to plants which are heavily manured, and constantly supplied with an abundance of water. I have found in every case where the runners have been sanded to the depth of about an inch and properly watered, they readily take root in the fresh sand and produce a fine growth of lateral branches. It has been found in some cases that sanding the vines in this way has as good an effect on their growth as an application of guano. Several small cranberry plantations were pointed out to me which had, at various times, been flooded with salt water, not only on Cape Cod, but also in New Jersey; but there was no evidence to show that salt sea-water, reduced in strength by heavy rains, affected the growth of the vines for good or evil.

It is believed by many successful cranberry growers that the runners of the vines should be sanded at least once in four years when practicable, and some growers sand them as often as once in three years. The great advantage derived from the sanding process consists in the stimulating of new roots along all the runners imbedded in the sand; and it seems from my investigation that the original roots decay in consequence of the vigor of the new ones; but the sand also protects the runners from extreme heat and premature frost.

At the Bricksburgh annual meeting of the Cranberry Growers' Association, I was informed by gentlemen from Pemberton and its vicinity, that the plantations in their neighborhood differ very much from all I had visited. Their soil is savanna and is very dry in most places, and previous to the last three years their berries had not rotted. I was further informed that Mr. Hinchman's plantation near Medford, presented conditions which apparently could be found on no other, his vines being more copiously watered than any I had yet seen, while his berries were exempt from the rot. At the earnest request of members of the association I visited this plantation, and those in the vicinity of Pemberton above referred to, as well as that of Mr. N. H. Bishop, near Manahawkin, Ocean County, in order to obtain additional facts in regard to the habits of the cranberry plant under new and exceptional methods of culture.

I found the plantations of Mr. Bishop, which embrace about 80 acres, in a very high state of cultivation. This gentleman has probably expended a larger amount per acre, and devoted more attention to the preparation of his bogs, than any other cranberry grower in the United States. He is regarded by all the New Jersey cranberry growers as one of the most zealous, clear-headed, and successful of their number. Practically, rot is unknown on his bogs. In company with Mr. Bishop and others, I made a thorough examination of his vines and berries, and also of the muck underlying his cultivated ridges. The peat is about five feet in thickness, is well decomposed, and quite homogeneous in texture. The bog was formerly a white-cedar swamp. Mr. Bishop is fortunate in having a fine supply of water. Cool and uninterrupted breezes pass over his plantations, a circumstance of considerable importance in connection with cranberry culture. It was, doubtless, largely due to these favorable conditions that the extreme heat and drought of last August and September produced no unfavorable effect upon his crops. I examined the muck or peat of an adjacent bog, belonging to the same gentleman, which had dried up during the summer, but had not been drained or brought under cultivation. A hole was dug about three feet in depth to ascertain the character of the sub-soil. We found it as free from odor as the cultivated bog-land, and as well decomposed. It was evident that nearly all the muck of this cedar swamp had long since passed through its fermenting condition. The cultivated land is perfectly drained, and the ditches are filled with running water. Mr. Bishop has put an unusually large amount of pure sand, not less than 10 inches, over the muck of his bogs. The roots of the vines consequently grow in the sand, which, by capillary attraction, conveys to them the soluble humus of the peat.

The true character of peat in relation to cranberry growth is still a matter of doubt; but one thing is evident, namely, that such masses of peat will always absorb and retain a large amount of water, and will thus tend to keep the sand on the top moist. Certainly the humus of the peat is not itself absorbed by the roots of plants, but humic acid is seldom free from ammonia, and the oxidation of peaty matter may also contribute to root and plant growth by supplying them with carbonic acid, which is one of the essentials of plant food.

I visited Pemberton, Burlington County, in company with Senator Gaskill and Messrs. Theodore Budd, Joshua Forsyth, Japhet Alston, David D. Coles, Ives Davis, and others, all engaged in cranberry growing. We visited the principal plantations within several miles of Pemberton, and found that the drought had disastrously affected this region. Pines were on fire in many places and burning with great fury, owing to their extreme dryness. The streams had dried up, with few exceptions, and no water was found within five feet of the surface on the cranberry lands. There is very little heavy bog land in this district; it is nearly all of savanna, (black sand,) composed of pure, sharp, white sand, combined with about 3 per cent. of black, vegetable matter. Sometimes cranberry cultivators at this place cover the runners with pure white sand. In times of great and high temperature, it protects, in a measure, the roots of the vines from the scorching rays of the sun. On the occasion of my visit I found the white sand on the vines so hot that it was disagreeable to hold in the hand, but the black sand near the same place was still hotter, and the cranberries on the vines were literally baked. Previous to visiting this district I had not admitted that rot of the berry was ever produced by a scorching sun, but I now have sufficient evidence of that fact.

On the 9th of September I visited the cranberry plantations of Charles C. Hinchman, situated at Taunton, Burlington County. They are subdivided into several plats, which are peculiarly and favorably situated for cranberry-culture. A stream of pure cold water flows through all his plats, most of which are nearly surrounded by high banks. From these ooze unseen currents of water, which moisten the cranberry plats below them. The stream which flows through Mr. Hinchman's principal bog is about three feet deep and twelve feet wide, and is slightly tinged with soluble humus (peaty matter) and bicarbonate of iron. In several of the bogs belonging to this gentlemen there are sulphur springs, one of which flows in the middle of a cranberry plat without doing any apparent injury to the plants. It may be remarked that Mr. Hinchman's cranberry vines, although cultivated, are growing in water as if in a wild bog. The condition of his bog-land vines and berries at once demonstrates that the cranberry-vine may be brought to a high state of cultivation, although the roots may be submerged in water the year round. Many valuable experiments have been made by Mr. Hinchman to ascertain how much drainage may be profitably employed, and the description of sand, as well as the amount per acre, that should be used on bog-land previous to the planting of vines; also, how much should be laid over the vines when in full growth.

I think that the Taunton plantations would be very little improved by the use of lime, while on the dryest portions of them a much larger yield of fruit would be obtained by the free use of fertilizers applied after the removal of the water of the winter flooding. On the margin of these plantations Mr. Hinchman has erected an extensive building of stone for the assorting, cooling, and storage of berries. Cylinders are supplied with an ice-mixture, through which cooled air is carried by means of suitable machinery over and through the crates of berries awaiting transportation.

This is the only place in the United States where machinery is employed to cleanse, cool, and assort the berries previous to shipment. This important fact was established by my visit to Mr. Hinchman's bogs: that the cranberry-vines are not injuriously affected, even though the roots may be submerged from 1 to 2 inches, provided the water is cool and in motion. Mr. Hinchman's plantations possess greater natural advantages than those of Mr. Bishop, but he will, notwithstanding, have a smaller crop than that gentleman, and his berries will ripen later. While walking over the Taunton vines my feet were frequently in two inches of water, and the use of rubber boots was indispensable, while the surface of the plantations at Manahawkin was comparatively dry. Under the wet system the vines have a greater tendency to extend in woody growth. The blossoms are consequently later in forming and the berries later in maturing than under the dryer system of culture; but in a series of years the wet system might prove more profitable than the other, since it affords a better protection against grasshoppers, and also the berry and vine worm. These pests are unknown on Mr. Hinchman's bogs. An analysis of the berries cultivated under each system would probably show that those from the wet plantations contain less earthy and solid matter generally than those from the dry, and, all other conditions being equal, would probably keep better than the former. A recent analysis of Captain Small's Cape Cod Early Black Bell berries gave one-fifth of 1 per cent. of earthy matter, while the common Cape Cod Bell berries of good quality gave about one-fourth of 1 per cent. All other conditions being equal, the Early Black would prove the better keeper, while the common bell of Cape Cod Bell would prove better for immediate use, being more juicy.

The system of sanding cranberry land is greatly varied. On Cape Cod the cultivators take advantage of their extremely cold winters. When their bogs are covered with ice of sufficient thickness to bear a horse and wagon, sand is carted over it and spread to the thickness required. When the ice melts, the sand is deposited evenly over the vines, at a cost of ten to fifteen dollars per acre, for one inch in thickness. In Southern New Jersey this system of sanding can seldom be taken advantage of, owing to the mildness of its winter. Mr. Theodore Budd, of Pemberton, N. J., informed me that in his neighborhood a layer of sand one inch thick can be spread over an acre of vines at a cost of \$20, provided labor does not exceed \$1.50 per day of ten hours, and when the sand is procured on the edge of the bog to be covered. On large plantations, consisting of one hundred to three hundred acres, a layer of sand one inch thick will cost from \$40 to \$60 dollars per acre. The cost will, of course, vary according to the distance of transportation.

The cranberry growers of New Jersey are very much divided in opinion as to the amount of water that should flow in the ditches of their bogs when the berries are coloring under high atmospheric temperature. Some believe that excessive moisture and high temperature cause the berries to rot, while others equally intelligent affirm the opposite. Much of this uncertainty arises from the limited quantity of water furnished at the fountain-head of many of the bogs under cultivation. A small stream will quickly fill the ditches of a 10-acre lot when stops or gates are used; but, during high temperatures, the water becomes quickly heated, and instead of proving beneficial will prove hurtful to the vines, especially when the sub-soil has not been well decomposed. Under such conditions fermentation will be promoted, producing organic acids and sulphuretted hydrogen in the vicinity of the roots, while a much larger flow of water in the ditches would cool the substratum of the bogs, and remove, at the same time, all soluble noxious substances.

At the Taunton plantation Mr. Hinchman introduced a novel system of washing sand over his bog-land by means of a stream of water conveyed for that purpose along the base of the high sand-bluffs which nearly surround his plats of cranberry vines. I am informed by Mr. Hinchman that by the use of this system sand was washed over his lands at the rate of ten tons per minute. In this way a kind of sand charged with ochereous clay (which is at present deemed worthless for cranberry-culture) may be used, as the water floats and separates the clay from the sand, depositing the latter on the vines, while the clay is washed away in the main stream, which was highly colored in consequence at a distance of ten miles below the point of operation.

Before investing in cranberry-culture more attention should be paid to the condition of the soil than has heretofore been done; for on that depends the quantity of water necessarily required for the purposes of irrigation. When water is very limited in supply, it should be protected from the sun's rays in some practicable way. Small ponds or dams used as reservoirs might be protected by shade-trees, and in many cases streams might be easily protected in this way. On my last visit to Bricksburgh, September 12, in company with Dr. Merriman of that place, we visited one of his plantations for the purpose of testing the difference of temperature of the waters at different parts of the bog. The stream which supplied several acres with water was so small that it might have been all conveyed at the time of our visit through a

10-inch pipe. It entered the bog from a ditch four feet in depth. A thermometer when immersed in it indicated 72° Fahr. The water being somewhat protected from the sun's rays, the temperature at the exposed edge of the ditch at the same point was 90° Fahr. At a distance of a hundred yards farther on, where the water was fully exposed to the sun's rays, the temperature indicated 89° Fahr. Shaded water in a ditch a hundred yards still farther removed from the first ditch had the temperature of 78° Fahr., while the sand on the exposed edge of the ditch showed a temperature of 92° Fahr. These observations were taken at 4.30 p. m.

We annex the following in advance from French & Co.'s valuable Annual Cranberry Circular:

The recent statistical report of N. R. French to the New Jersey Cranberry Growers' Association shows the entire acreage in New Jersey, under regular cultivation, to be 4,969 acres. Average cost at three years from setting, (the fruit-bearing age,) \$334.50 per acre, making total investment \$1,662,130. Crops in this State have been, in 1871, 58,839 bushels; in 1872, 93,322 bushels; 1873, 116,409 bushels. The average market-prices have been in the years named, \$3.42, \$3.21, \$2.93, respectively. Abating \$1 per bushel from market-price for cost of picking and marketing, would make the crop of 1873 worth, on the vines, \$224,716, or 13½ per cent. on the entire investment.

The New Jersey fruitage in 1873 was most bountiful, but 40 to 50 per cent. was destroyed by the rot. This season the average fruitage upon old plantations is believed to be 30 to 40 per cent. below last year, but the rot on these has not been so severe. New bogs have suffered most, as usual, the entire crop in many cases being lost. Allowing for increase of acreage, we think the entire crop of the State must be 25 per cent. below that of a year ago.

The crop on the eastern portion of Cape Cod is very light, and in many districts almost an entire failure. The western portion and the adjoining islands have good crops. The other cranberry districts of Massachusetts and Rhode Island, nearly all of them, have good crops. The few plantations on Long Island and other portions of New York have good crops.

The fruit not affected by New Jersey rot seems sound and solid, promising to keep well.

LIME AND ITS USE.

BY THE COMMISSIONER.

It is now universally conceded that in every quality of soil the use of lime greatly conduces to its fertility, by converting its component parts into the elements which give strength and brightness to straw, and food to the plant.

As to the time, place, and circumstances in which lime may be profitably used, the directions are simple and easy. In its use the farmer has this advantage—that it may be spread upon the land at any time or season, provided it is spread, and not suffered to lie in heaps after it shall have been slaked. It loses nothing by exposure, and soon finds its place commingled with the soil. Whether the land be broken up or in sod is of no importance; but the circumstance as to quantity brings into consideration this principle, that the more may be used in proportion to the fertility of the soil. While upon a good limestone clay, 250 bushels to the acre might be used with impunity, 100 bushels upon a thin slate or sandy soil, void of vegetable matter, would do more harm than good. Just in proportion to the vegetable substance which is in the land may the quantity of lime be increased. In slate or sandy land,

which has been subjected to the ordinary cultivation of a farm, in which there is the usual amount of vegetation, or where the farmer can precede the spread of lime with a coat of barn-yard manure, 60 bushels to the acre is a proper quantity, and if this be applied in two successive seasons it will be better. Upon limestone land which has undergone like cultivation, double the quantity may be used.

The property of lime is to convert vegetable substances into plant-food, and mineral substances into the component parts of straw; so that, while it prepares food to increase the quantity and quality of the grain, it furnishes a bright and strong straw to conduct that food to the making of grain and supports its weight. A prejudice once existed against the use of lime, under the idea that it heated the land, and thereby subjected the plant the more to the influence of the hot sun. There could be no greater mistake than this, for lime has a magnetic influence which draws to itself all the moisture that abounds in the atmosphere, and thereby makes land less subject to the influence of the hot sun. As to the condition of the land when lime is used one other remark must be made. It should never be put upon land on which water habitually lies until the same be thoroughly drained. And here, in reference to the prevalent idea that lime will dry up wet land, it may be said that it will have no such effect, but, on the contrary, will destroy the character of such land for any purpose. Standing-water, lime, and sand will make a substance adapted to the builder's purpose, but does not make a fertile soil. There is much difference in the quality of material for making lime. In some stone, magnesia prevails largely and this is less profitable. That which makes the best mortar is the strongest and best for land. The experience of the builder, in his choice for mortar, is a good guide for the farmer. Oyster-shells make the best of lime. How a farmer who has access to limestone or oyster-shells may make his own lime is worthy of his study. I do not propose to treat of the use of a lime-kiln, for if the farmer has one of his own, he, of course, knows how to use it; but to burn lime in a stack, at any place which may be made convenient by the location of the stone-quarry or shells, in its details is worthy of consideration. If stone is to be burned with coal, the size should not exceed two pounds in weight, and built in conical form, the outer walls being so carefully laid as to contain the weight within. I may illustrate it by describing a kiln as 30 feet long, 18 feet wide at the base, and tapering gradually and regularly on all sides to the height of 12 feet. This is made up of alternate layers of the stone and coal, requiring, for a kiln of this size, about 22 tons of coal, and which will produce about 2,603 bushels of unslaked lime. This kiln should be built upon six trenches at least one foot square, which are filled with dry wood, and the whole bottom covered with light dry material, such as old rails, stumps, corn-cobs, &c., which will serve to light the coal which is to do the work of burning the stone or shells into lime. A trench may then be dug around the kiln, which will furnish the clay for making the mortar with which the whole outside must be closely covered, and if straw or chaff be mixed with the plaster, it will be less likely to crack and suffer the escape of heat. The size of the kiln may be increased to almost any extent, and perhaps the larger it is the more profitable will be the result, increasing the base and height as well as the length. I may suggest that to build at the base of a rise of ground makes it more convenient to wheel stone upon the kiln in its construction. A ton of coal in a kiln thus properly constructed should produce 120 bushels; and to enable a farmer to estimate the quantity of coal required, and the number of bushels of lime which will

be produced from a kiln of any given size, I subjoin a calculation of the one given:

Width of the base.....	18 feet.
Length of the kiln.....	30 "
	<hr/>
Half the height of the kiln.....	540
	6
	<hr/>
Number of cubic feet.....	3240
Number of cubic inches in a foot.....	1728
	<hr/>
	25920
	6480
	22680
	3240
	<hr/>
Cubic inches in a bushel.....	2150.4)5598720(2603.5 bushels.
	43008
	<hr/>
	129792
	129024
	<hr/>
	76800
	64512
	<hr/>
	122880
	107520
Tons to bushel.....	120)2603.5 bushels.
	<hr/>
Tons of coal required.....	21

AUSTRALIA AND THE CENTENNIAL EXPOSITION.

The secretary of the Agricultural Society of New South Wales, in a recent letter to the Department of Agriculture, says:

I am happy to state that the reports of your Department, to which we give all due publicity, have proved of immense benefit to the Australian colonies. Several of the colonies have established departments of agriculture, and the constantly-increasing number of agricultural societies throughout Australia, with which we are in daily communication, will ere long enable us to concentrate a mass of authentic information which will place us in a position to publish once a year a volume somewhat resembling your annual report. It may be gratifying to you to know that the example so nobly set by the United States has been followed by Australia.

We are now engaged in securing the co-operation of all the colonies of the Australian group in obtaining from the Centennial Commission of the Philadelphia Exposition in 1876 sufficient space to represent at the great centennial gathering the undeniable proof of the immense natural resources of this territory.

AMERICAN COTTON AND TOBACCO CULTIVATORS WANTED IN THE ISLAND OF CORSICA.

The Department a few years ago embraced an opportunity of sending some Maryland and Virginia tobacco seed to Madame de Angeli, of the Island of Corsica, in the Mediterranean, for experimental culture. From the letter below, from the agent of Madame de Angeli, it will be seen that the experiment has proved so successful as to lead a prominent planter of the island to offer liberal inducements for persons in this country, who may be competent to the undertaking, to go to the

island and engage in the cultivation of both cotton and tobacco, for which the climate and soil of the country are believed to be peculiarly adapted.

PHILADELPHIA, *September 28, 1874.*

DEAR SIR: I am requested to inform you that the seeds of Virginia and Maryland tobacco, which your Department sent to Madame Emilia de Angeli, some four years ago, for planting in Corsica, have produced most gratifying results. The seeds were sown upon the estates of M. Jean de Peraldi, Baron de Commene, and in the district of Vico, lying near the sea. From March to June two crops or cuts were obtained, and the third crop was well up, but did not come to perfection. Potatoes and beans were afterwards planted on the tobacco fields, and produced an excellent crop. The Corsicans, however, do not understand well the art of dressing the tobacco produced. Cotton does not seem to have proved so great a success; probably because the cultivation was not well understood. In order, however, to stimulate the cultivation of both cotton and tobacco, Baron Peraldi authorizes me to inform your Department that he would willingly give a small tract of land on his estates in and around Vico to any Americans who, understanding the management of these products, would go out to Corsica and settle, he, of course, being prepared to provide for them until such time as they could, by means of their own industry in raising these staples, provide for themselves.

Very respectfully,

CHARLES H. A. ESLING,

Agent for the De Angeli Estates, 203 South Fourth St., Philadelphia, Pa.
THE COMMISSIONER OF AGRICULTURE.

FACTS FROM OFFICIAL SOURCES.

BRITISH CROPS.—The London Agricultural Gazette publishes statements, founded upon letters received from 273 correspondents in different localities of England, Scotland, and Ireland, giving the condition of the crops on the 1st of August. Of these, 183 represent the condition of wheat as above average, 83 average, and 7 below average. Last year, of 257 similar reports to the same journal, only 11 were above average, 89 were average, and 157 below. The spring grains of 1874 were inferior to those of the previous year. In Great Britain the prospect of more than half the acreage in barley, oats, and pease was below average and a third, full average.

FRENCH FARMERS.—The British Blue Book for 1869 shows that the total number of French agriculturists was 7,333,259, of whom 5,875,945 were land proprietors, and 1,457,314 were landless. Of the proprietors, 56,639 cultivated their own estates, 1,754,934 (small farmers) cultivate their own lands, 1,987,186 cultivate their own land besides laboring on adjoining estates; 648,836 farmers and proprietors; 293,860 metayers and proprietors; 1,134,490 laborers and proprietors. Of the non-proprietors, 386,533 were farming rented land, 201,527 were metayers, farming lands for a share of the produce, 869,254 day laborers. The agricultural land proprietors constitute one-seventh of the entire population, and 80 per cent. of the entire agricultural adult male population.

AUSTRO-HUNGARIAN CROPS.—Leading statisticians estimate that of 3,329,800 arpents under cultivation in the Austro-Hungarian Empire, 1,366,000 arpents have yielded crops above average, 1,377,000 arpents full average, and 586,000 arpents below. Hungary has made better crops than the Cis-Leithan provinces.

ENGLISH GAME-LAWS.—Statistics laid before a parliamentary commission show that during the past four years in England and Wales the convictions for violations of game-laws have averaged, per annum,

as follows: For minor offenses, punished with fine, 7,000; for offenses punishable with imprisonment for three months or less, 1,500; for offenses punishable with imprisonment for over three and less than six months, 70; for offenses punishable by penal servitude, 10. The severe execution of these laws in many localities has led to the excessive preservation of game destructive of crops.

CONSCRIPTION OF HORSES.—*Le journal d'Agriculture pratique* publishes the text of a late law of the French national assembly relative to the conscription of horses. An annual census in each commune, under the authority of the mayor, is to enroll the number of horses and mares six years old and upward, and of mules four years old and upward. A mixed military and civil commission is to inspect these animals, and to select such as are fit for the military service. These are subject to authoritative purchase by the government, at its own discretion. Several exemptions of this right of purchase are specified, such as horses belonging to the chief of state and to some other public functionaries, post-horses, approved stallions, mares with foal or specially adapted to gestation, animals absolutely necessary for army-transportation in time of war, &c. The minister of war fixes the quota to be furnished by each region in such manner as to avoid embarrassment in passing from a state of peace to one of war. The owner of a conscripted animal has the privilege of exemption, provided he can secure a substitute of the same category satisfactory to the commission of *remount*. Horses drawn are classified according to the requirements of different branches of the service, and the prices of each class are fixed by law. Proprietors who refuse or neglect to comply with the requisitions of the law are subject to a variety of penalties for each offense, ranging from 50 francs to 1,000 francs. It is the duty of the owner to deliver conscripted animals to the designated authorities.

THE GRAIN-TRADE OF EUROPE.—The railway-system is producing wonderful changes in the production and distribution of crops in the Old World. Königsberg, in Germany, is rapidly becoming a great point for the shipment of Russian and Polish grain and hemp to Western Europe. The extension of the railways is annually adding to the export-trade of that city in spite of the tariff imposed by the Russian government. The grain and hemp brought to this market come mostly from the neighborhood of Orel. A new article of commerce, buckwheat-groats, has lately appeared in this trade, and is largely exported to Holland and Belgium. Russia is completing its lines of transportation from the interior to its own Baltic ports; but Königsberg is but little affected by this competition, as is shown by her annually increasing trade.

COTTON-LANDS IN CALIFORNIA.—It is estimated by intelligent parties on the Pacific coast that California embraces over 20,000,000 acres of land suited to cotton-culture, or double the area actually employed in the cotton States of the Atlantic slope and the Mississippi Valley. This land, under proper treatment, may be made to produce from ten to eleven millions of bales of cotton per annum, representing a cash-value of about three-quarters of a billion of dollars. But a small portion of the California cotton-lands have been brought under cultivation.

BEET-SUGAR IN CALIFORNIA.—The Sacramento beet-sugar factory is reported as under successful operation; the working-up of this year's crop having commenced September 29. The crop of sugar-beets to be worked up amounts to nearly 10,000 tons. The field-gang of 45 men is gathering the crop as rapidly as possible. The factory is worked

night and day by gangs of 45 men each, relieving each other. The sugar produced is said to be superior to any other raw sugar in the market.

FALSE AGRICULTURAL PHILOSOPHY.—The partial failure of the wheat-crop for three seasons in England has caused some English farmers to suppose that the land has become "sick" of small-grain culture, and that it needs the rest of a long fallow to recuperate. The Mark Lane Express thinks that the failures of the past three years are largely due to improvident culture, and especially to the lack of fertilization. The fine yield of 1874 is cited as sufficiently explosive of the old idea of "sickness of the land," an agricultural superstition dating back to the commencement of the Christian era. Columella, a Roman writer of the first century, wrote against the croakers of that day, who tormented themselves and the public with this absurd chimera. He charged the failure of crops upon the slothfulness and ignorance of cultivators. It is astonishing how old errors constantly reproduce themselves. In spite of the advance of science and the diffusion of intelligence, men who have opportunities of knowing better surrender themselves to childish delusions, and gravely propound the most fanciful hypotheses to account for facts they do not understand. In the present case, however, the truth lies near the surface. Common sense shows sufficient cause for the late crop-failures in the incompetence or listlessness of farmers themselves. These sharp criticisms find a legitimate application on this side of the Atlantic.

PRESERVING MANURE.—The Boston Journal of Chemistry states that the sources of loss in the storage of manure are two: first, the escape of volatile ammonia and other gases; and, secondly, the loss of valuable salts by leaching. The first difficulty may be obviated by covering the excrement with eight or ten inches of good soil or loam, which will absorb all escaping gases. A bushel or so of plaster may be advantageously scattered over the heap before the soil is thrown on. The whole mass should be perfectly covered, leaving no "chimney" for gaseous exudation. The danger of leaching may be avoided by covering the heap with hay or straw sufficiently thick to shed most of the rain. If kept in this way a sufficient time, the manure will undergo spontaneous decomposition, the products of which will be ready for immediate assimilation by plants. The usual process of carting manure to the fields in the autumn to waste, by both the above processes, some of their most valuable constituents.

PRESERVING GRAPES.—A French viticulturist has lately published a process by which he has preserved the freshness, beauty, and scent of grapes as late as the month of April. The fruit is left upon the vine up to the last moment, but must be cut, before the first frost, at the second or third joint below the cluster. The cut end is then covered with wax to prevent the escape of vegetable fluids, and then thrust into a bottle of water through a perforated cork. A little charcoal in the water preserves its purity. The cork is then covered with sealing-wax, air-tight, and the bottles placed in a dry room, where the temperature never falls below the freezing-point, and carefully kept in an erect position, the clusters not being allowed to touch each other. Every imperfect grape must be removed as fast as it shows signs of failing.

ARTIFICIAL FERTILIZATION OF FLOWERS.—It has been discovered that infertile flowers may be fertilized by touching their pistils with camel's-hair pencils dipped in honey; or, still better, in honey mixed with pollen of a fertile flower. In the botanical gardens of Vienna, a

Hibiscus Mexicanus under this treatment yielded a large quantity of good seeds. Several fruit-trees yielded fruit from blossoms to which this application had been made, while others, not subjected to this process, entirely failed. It is supposed that the honey merely retains the pollen-grains that fall upon it from the stamens, and secures their communication with the germinal organs.

THE HOP-CROP IN EUROPE.—From the Mark Lane Express of September 14, the following concerning the hop-crop is taken :

The crop of 1874 cannot be so large as merchants and factors would wish the world to believe. Under no circumstances can the amount exceed 272,000 cwt., or 400 per acre, on the excessive acreage of 68,000 acres, equal to an old duty of £136,000. It is simply absurd to think of any higher figures, for there are thousands of acres in Sussex, Mid and West Kent, Hereford, and Worcester that will yield nothing; thousands of acres will not yield more than from 1 cwt. to $1\frac{1}{2}$ cwt. per acre, and thousands that cannot produce 3 per acre. Let it be assumed that there are 20,000 acres in East and Mid Kent, Surrey, and Hants that will give an average of 7 cwt. per acre, or about an average yield; this would make 140,000 cwt. Then put 28,000 acres in Kent, Hants, and Surrey, at 3 cwt. per acre all round, required to make the total equal to 272,000 cwt.

The best proof that the crop will be short, not more than half an average, is that prices are hardening daily, and range from £10 10s. to £13, according to sort and quality. * * * * * After careful examination of the continental prospects, it seems to be certain that really good hops cannot be imported here and sold under £13 to £15 per cwt.

MARKET PRICES OF FARM-PRODUCTS.

The following quotations represent the state of the market, as nearly as practicable, at the beginning of the month:

Articles.	Prices.	Articles.	Prices.
NEW YORK.		NEW YORK—Continued.	
Flour, superfine.....per bbl.	\$4 40 to \$4 80	Sugar, fair to good, refining per lb	\$0 8½ to \$0 8½
extra State.....do....	5 00 to 5 75	prime, refining.....do....	8½ to 12½
superfine western.....do....	4 40 to 4 80	Tobacco, lugs.....do....	10 to 12½
extra to choice western,		common to medium	
per barrel.....	4 90 to 9 00	leaf.....per lb.	12½ to 15½
common to fair southern		Wool, American XXX and pick-	
extra.....per bbl.	5 10 to 6 00	lock.....per lb.	58 to 68
good to choice south-		American X and XX, per	
ern.....per bbl.	6 05 to 8 75	pound.....	47 to 57½
Wheat, No. 1 spring...per bush.	1 21 to 1 27	American, combing, per lb.	55 to 62
No. 2 spring.....do....	1 11½ to 1 20	pulled.....do....	38 to 50
winter, red, western,		California spring clip, per	
per bushel.....	1 21 to 1 27	pound.....	25 to 36
winter, amber, western,		California fall clip .per lb.	26 to 28
per bushel.....	1 21 to 1 27		
winter, white, western,		PHILADELPHIA.	
per bushel.....	1 30 to 1 42	Flour, superfine.....per bbl.	3 25 to 3 75
Rye.....per bush.	90 to 95	Pa. extra.....do....	4 25 to —
Barley.....do....	1 25 to —	Pa. family and fancy, do....	5 75 to —
Corn.....do....	96 to 1 00	western, extra.....do....	6 00 to 6 75
Oats.....do....	60 to 65	western family and	
Hay, first quality.....per ton.	16 00 to 21 00	fancy.....per bbl.	7 00 to 8 50
second quality.....do....	12 00 to 13 00	Wheat, winter, red.....per bush.	1 18 to 1 25
Beef, mess.....per bbl.	12 50 to 13 50	winter, amber.....do....	1 23 to 1 28
extra mess.....do....	14 00 to 15 00	winter, white.....do....	1 25 to 1 45
Pork, mess.....do....	22 65 to 22 75	spring.....do....	— to —
extra prime.....do....	— to —	Rye.....do....	1 00 to 1 05
prime mess.....do....	— to —	Barley.....do....	1 30 to —
Lard.....per lb.	14 to —	Corn.....do....	96 to 1 06
Butter, western.....do....	25 to 38	Oats.....do....	61 to 67
State dairy.....do....	30 to 40	Hay, fresh baled.....per ton.	21 00 to 23 00
Cheese, State factory.....do....	13 to 15	common to fair shipping,	
western factory.....do....	11½ to 14½	per ton.....	19 00 to 20 00
Cotton, ordinary to good ordi-		Beef, western mess.....per bbl.	8 00 to 10 00
nary.....per lb.	13½ to 15½	extra mess.....do....	9 00 to 12 00
low middling to good		Warthman's city family,	
middling.....per lb.	15½ to 17½	per barrel.....	17 00 to —

Market-prices of farm-products—Continued.

Articles.	Prices.	Articles.	Prices.
PHILADELPHIA—Continued.		CINCINNATI—Continued.	
Pork, mess.....per bbl.	\$24 25 to \$24 50	Tobacco, lugs.....per lb.	\$0 12 to \$0 25
prime mess.....do.	23 00 to —	leaf.....do.	15 to 37½
prime.....do.	22 00 to —	Cotton, ordinary to good ordi-	
Lard.....per lb.	14½ to 19	nary.....per lb.	12½ to 13½
Butter, choice Middle State,		low middling to good	
per pound.....do.	35 to 40	middling.....per lb.	14½ to 16
choice western.....per lb.	23 to 33	Wool, fleece-washed.....do.	43 to 47
Cheese, N. Y. factory.....do.	14 to 14½	tub-washed.....do.	50 to 52
Ohio factory.....do.	13 to 14	unwashed, clothing.....do.	32 to 34
Sugar, fair to good refining.....do.	8½ to 8½	unwashed, combing.....do.	35 to 39
Cotton, ordinary to good ordi-		pulled.....do.	35 to 38
nary.....per lb.	13 to 15½		
low middling to good		CHICAGO.	
middling.....per lb.	15½ to 18½	Flour, white winter, fair to good,	
Wool, Ohio X and XX.....do.	54 to 55	per barrel.....do.	6 00 to 6 50
Ohio combing.....do.	60 to 65	choice.....per bbl.	7 00 to 7 25
pulled.....do.	42 to 47	red winter.....do.	5 50 to 6 00
unwashed, clothing and		medium to fancy spring	
combing.....per lb.	41 to —	extras, per barrel.....do.	4 62½ to 5 50
BALTIMORE.		spring superfine.....per bbl.	3 50 to 4 25
Flour, superfine.....per bbl.	4 00 to 4 50	Wheat, No. 1 spring.....per bush.	98 to 99
extra.....do.	4 75 to 7 00	No. 2 spring.....do.	98 to 99
family and fancy.....do.	7 25 to 8 75	No. 3 spring.....do.	85 to 90
White wheat.....per bush.	1 18 to 1 28	Corn, No. 2.....do.	81 to 83
Wheat, amber.....do.	1 30 to 1 38	Oats, No. 2.....do.	49 to 53
red.....do.	1 06 to 1 30	Barley, No. 2.....per bush.	1 00 to 1 15
Rye.....do.	98 to 1 03	Rye, No. 2.....do.	89 to 90
Corn, white southern.....do.	1 00 to 1 03	Hay, timothy.....per ton.	14 50 to 16 50
yellow southern.....do.	1 00 to 1 03	prairie.....do.	11 00 to 12 50
Oats, southern.....do.	62 to 65	Beef, mess.....per bbl.	9 50 to —
western.....do.	63 to 64	extra mess.....do.	10 50 to —
Hay, Pennsylvania.....per ton.	18 00 to 20 00	Pork, mess.....do.	21 75 to 22 00
Maryland.....do.	18 00 to 21 00	prime mess.....do.	— to —
Beef, Baltimore mess.....per bbl.	— to —	extra prime.....do.	— to —
extra.....do.	— to —	Lard.....per lb.	14½ to 14½
Pork, mess.....do.	24 00 to —	Butter, choice to fancy.....do.	30 to 35
Lard.....per lb.	15½ to 16	medium to good.....do.	23 to 27
Butter, western.....do.	24 to 35	Cheese, N. Y. factory.....do.	13½ to 14½
eastern.....do.	36 to 45	Ohio and western fac-	
Cheese, eastern cutting.....do.	15½ to 16½	tory.....per lb.	12½ to 13½
western cutting.....do.	14 to 15½	Sugar, N. O., prime to choice.....do.	— to —
Sugar, fair to good refining.....do.	8½ to 8½	N. O., common to fair.....do.	— to —
Tobacco, lugs.....do.	6 to 9½	Wool, tub-washed.....do.	45 to 57
common to medium leaf,		fleece-washed.....do.	40 to 50
per pound.....do.	8½ to 11	unwashed.....do.	27 to 35
Cotton, ordinary to good ordi-		pulled.....do.	— to —
nary.....per lb.	— to 14	SAINT LOUIS.	
low middling to mid-		Flour, spring.....per bbl.	3 00 to 4 50
dling.....per lb.	14½ to 15	winter.....do.	3 00 to 8 00
Wool, fleece-washed.....do.	— to —	Wheat, red winter.....per bush.	1 00 to 1 16
tub-washed.....do.	— to —	white winter.....do.	1 00 to 1 20
unwashed.....do.	— to —	spring.....do.	80 to 90
pulled.....do.	— to —	Corn.....do.	80 to 90
CINCINNATI.		Rye.....do.	90 to 95
Flour, superfine.....per bbl.	4 00 to 4 35	Oats.....do.	50 to 54
extra.....do.	5 00 to 5 15	Barley.....do.	95 to 1 20
family and fancy.....do.	5 15 to 6 25	Hay, timothy.....per ton.	17 00 to 20 00
Wheat, red winter.....per bushel.	1 00 to 1 06	Beef, prime mess.....per bbl.	— to —
hill winter.....do.	1 03 to 1 12	mess.....do.	14 00 to 15 00
white winter.....do.	1 03 to 1 15	Lard.....per lb.	12 to 15
Rye.....do.	98 to 1 00	Butter, choice.....do.	30 to 35
Barley.....do.	1 30 to 1 45	inferior grades.....do.	20 to 25
Corn.....do.	84 to 85	Cheese, Ohio and N. W. factory,	
Oats.....do.	56 to 58	per pound.....do.	13½ to 14
Hay, baled, No. 1.....per ton.	20 00 to 23 00	N. Y. factory.....per lb.	13 to 13½
lower grades.....do.	15 00 to 19 00	Sugar, N. O., common to fair, per	
Beef, plate.....per bbl.	14 50 to 15 00	pound.....do.	— to —
Pork, mess.....do.	26 00 to 26 50	N. O., prime to choice, per	
Lard.....per lb.	— to —	pound.....do.	— to —
Butter, choice.....do.	33 to 35	Cotton, ordinary to good ordi-	
prime.....do.	23 to 32	nary.....per lb.	12 to 13½
Cheese, factory.....per lb.	14½ to 15½	low middling to good	
prime apple.....do.	— to —	middling.....per lb.	15 to 15½
Sugar, N. O., fair to good.....do.	— to —	Wool, tub-washed.....do.	50 to 53
prime to choice.....do.	— to —	unwashed combing.....do.	27 to 33
		fleece-washed.....do.	32 to 45

Market-prices of farm products—Continued.

Articles.	Prices.	Articles.	Prices.
NEW ORLEANS.		NEW ORLEANS—Continued.	
Flour, superfine.....per bb	\$4 00 to —	Cotton, low middling to good	
extra.....do....	4 25 to \$6 50	middling.....per lb.	\$14½ to \$15½
choice to fancy.....do....	6 62½ to 7 00	Wool, lake.....do....	3½ to —
Corn, white.....per bush	98 to 1 00		
yellow.....do....	97 to 98		
Oats.....do....	64 to 65	SAN FRANCISCO.	
Hay, choice.....per ton	25 00 to 26 50	Flour, superfine.....per bbl.	4 00 to 4 35
prime.....do....	24 00 to 25 00	extra.....do....	4 50 to 4 62½
Beef, Texas.....per bbl.	— to —	family and fancy.....do....	4 75 to —
Fulton market.....per ¼ bbl.	11 00 to 11 50	Wheat, California.....per cental.	1 40 to 1 50
western.....per bbl.	— to —	Oregon.....do....	1 40 to 1 50
Pork, mess.....do....	24 00 to 24 50	Barley.....do....	1 05 to 1 25
Lard.....per lb.	16 to 17½	Oats.....do....	1 45 to 1 65
Butter, choice Goshen.....do....	— to 42	Corn, yellow.....do....	1 55 to 1 60
western.....do....	25 to 35	white.....do....	1 55 to 1 60
Cheese, choice western factory,		Hay, State.....per ton	8 00 to 14 00
per pound.....	15½ to 16	Beef, mess.....per bbl.	8 50 to 10 00
N. Y. cream.....per lb.	18 to —	family mess.....per ¼ bbl.	6 50 to 8 00
Sugar, fair to fully fair.....do....	— to —	Pork, mess.....per bbl.	22 00 to 24 00
prime to strictly prime,		prime mess.....do....	17 50 to 18 50
per pound.....	10½ to 10¾	Lard.....per lb.	15 to 16
clarified, white, and yel-		Butter, overland.....do....	20 to 25
low.....per lb.	10¾ to 10½	California.....do....	25 to 50
Tobacco, lugs.....do....	8½ to 10½	Oregon.....do....	18 to 25
low leaf to medium leaf,		Cheese.....do....	12½ to 16
per pound.....	10½ to 13	Wool, native.....do....	17 to 22
Cotton, ordinary to good ordi-		California.....do....	25 to 30
nary, per pound.....	11½ to 13½	Oregon.....do....	25 to 30

LIVE-STOCK MARKETS.

NEW YORK.		CHICAGO—Continued.	
Cattle, extra beeves.....per cental.	\$12 75 to \$13 00	Cattle, choice beeves, 3 to 5 years	
good to prime.....do....	— to —	old, 1,250 to 1,950 pounds,	
common to fair.....do....	8 50 to —	per cental.....	\$5 75 to \$6 00
milk-cows.....per head.	50 00 to 85 00	good beeves, 1,200 to 1,300	
calves.....per cental.	4 00 to 7 00	pounds.....per cental.	4 25 to 5 25
Sheep, good to extra.....do....	4 50 to 6 25	medium grades, 1,150 to	
Swine, common to fair.....do....	6 00 to 6 75	1,300 pounds, per cental.	3 75 to 4 25
		lower grade natives, per	
		cental.....	2 50 to 3 50
PHILADELPHIA.		Texans, choice corn-fed,	
Cattle, beeves.....per cental.	3 25 to 7 50	per cental.....	4 25 to 4 75
Sheep.....do....	4 00 to 6 00	Texans, north - wintered,	
Swine.....do....	11 00 to 11 50	per cental.....	2 00 to 3 75
		Texans, through-droves,	
BALTIMORE.		per cental.....	1 75 to 3 75
Cattle, best beeves.....per cental.	5 00 to 6 25	Sheep, poor to medium, per	
first quality.....do....	4 00 to 5 00	cental.....	2 25 to 3 50
medium.....do....	3 50 to 4 00	good to choice, per cental.	3 75 to 4 50
ordinary.....do....	3 00 to 3 50	Swine, good to extra.....do....	6 60 to 7 50
general average.....do....	— to —	inferior to medium, do....	5 00 to 6 50
most of the sales be-			
tween.....per cental.	4 00 to 5 09	SAINT LOUIS.	
Sheep.....do....	2 30 to 5 25	Cattle, choice native steers, 1,300	
Swine, corn-fed.....do....	8 00 to 10 50	to 1,600 pounds, per cental.	5 00 to 5 75
		prime second-class, 1,150 to	
CINCINNATI.		1,400 pounds.....per cental.	3 00 to 5 00
Cattle, good to prime butchers'		good third grade, 1,050 to	
steers.....per cental.	4 50 to 6 00	1,300 pounds.....per cental.	2 00 to 3 50
common to good, medium,		fair butchers', 1,000 to	
per cental.....	2 00 to 4 25	1,200 pounds, per cental.	— to —
milk-cows.....per head.	— to —	inferior native grades, per	
Sheep, common.....per cental.	3 00 to —	cental.....	— to —
good to prime, butchers',		Texans and Cherokees.	
per cental.....	4 50 to —	corn-fattened, per cental.	2 50 to 4 50
Swine, shipping grades, per cen-		inferior.....do....	1 75 to 2 00
tal.....	5 40 to 6 00	Sheep.....do....	2 25 to 4 25
good to prime, butchers',		Swine.....do....	4 50 to 7 25
per cental.....	6 25 to 6 55	Horses, plug.....per head.	40 00 to 75 00
CHICAGO.		street-car horses.....do....	75 00 to 125 00
Cattle, extra-graded steers, 1,400		good work-animals.....do....	80 00 to 110 00
to 1,500 pounds, per cen-		driving-animals.....do....	100 00 to 150 00
tal.....	6 40 to 6 70	heavy draught.....do....	130 00 to 170 00

Live-stock markets—Continued.

Articles.	Price.	Articles.	Price.
SAINT LOUIS—Continued.		NEW ORLEANS—Continued.	
Mules, 14 to 15 hands high, per head.....	\$75 00 to \$120 00	Cattle, first quality....per head.	\$30 00 to \$35 00
15 to 16 hands high, per head.....	120 00 to 165 90	second quality.....do....	20 00 to 25 00
extra.....per head.	175 00 to 200 00	western beeves.per cental.	— — to — —
NEW ORLEANS.		milch-cows.....per head.	35 00 to 100 00
Cattle, Texas beeves, choice, per head.....	— — to 40 00	calves.....do....	7 00 to 9 00
		Sheep, first quality.....do....	4 00 to 5 00
		second quality.....do....	3 00 to 4 00
		Swine.....per cental.	5 00 to 10 00

FOREIGN MARKETS.

WHEAT.—The latter part of September was very mild in the British Islands, with very serviceable, light rains, facilitating the breaking up of the ground, somewhat parched by previous dry weather. The rain at many points was injurious to potatoes, thus throwing a heavier task of feeding the population upon the cereals, especially the lower descriptions of wheat. Nothing is visible in the wheat-trade to bring speculators upon the market. Small farmers, being somewhat pinched, are freely giving out their hoards, causing the millers to think that they hold the mastery of the situation. Prices during the third week of September fell off 1 shilling per quarter. Foreign wheat is also in full supply. In France prices had given way, but with indications of diminished supplies. The west, center, and north of France are more affected than the south, where an effort seems to have been made to maintain previous high prices. Of 114 French interior markets, 14 advanced and 1 showed a tendency in this direction, 13 were firm, 33 were without variation, 8 were calm, 44 declined, and 1 showed a downward indication. Inferior grains remained generally firm. But little change is noted in Belgium, Holland, and Germany, while at Odessa it was hoped that the fineness of the grain would eventually secure better than the ruling prices. At Algiers a dead calm prevailed in the wheat-market.

The sales of English wheat during the third week of September were 72,254 quarters, at 46s. 8d. per quarter, against 62,693 quarters, averaging 64s. 7d., during the corresponding week of 1873. The London averages were 47s. 6d. on 4,849 quarters. The imports into the United Kingdom during the week ending September 19, were 859,156 cwts. In Mark Lane, Essex, and Kent, new white brought 45s. to 50s. per quarter; ditto, red, 42s. to 46s.; Norfolk, Lincolnshire, and Yorkshire, 42s. to 46s. Of foreign wheats, Dantzic mixed ranged from 52s. to 61s.; Königsberg, 48s. to 60s.; Rostock, old, 49s. to 50s.; Silesian, red, 49s. to 53s.; Pomeranian, Mecklenberg, and Uckermark, red, 48s. to 50s.; Ghirka, 42s. to 43s.; Russian, hard, 43s. to 46s.; Saxonska, 47s. to 48s.; Danish and Holstein, red, 49s. to 51s.; American, red, 46s. to 48s.; Chilian, white, 50s.; Californian, 51s.; Australian, 51s. to 45s. In Liverpool, Canadian white brought 9s. 9d. to 10s. 3d. per cental; American red winter, 8s. 10d. to 9s. 6d.; spring, No. 1, 9s. 4d. to 9s. 8d.; spring, No. 2, 8s. 6d. to 9s.; Bombay, 8s. 9d. to 10s. 3d.; Kurrachee, 9s. 3d. to 9s. 6d.; Egyptian, 8s. to 9s. 6d.; Californian, 10s. 1d. to 11s.; Oregon, 10s. to 11s.; Chilian, 9s. 3d. to 9s. 6d.; Australian, 10s. 10d. to 11s.

In Paris wheat averaged 43*s.* to 50*s.* per quarter. At Marseilles prices ranged from 42*s.* 6*d.* to 47*s.* 6*d.* for Egyptian and other Oriental wheats. At Antwerp fine American red winter maintained its position at 49*s.* At Rotterdam the quotations varied between 48*s.* 6*d.* and 53*s.*

FLOUR.—The imports into the United Kingdom during the week ending September 19 were 114,858 cwt. The influx of foreign flour, mostly in barrels, was not large. The latter, though with limited demand, maintained its prices. The Paris trade showed signs of weakness, prices giving way one shilling per quarter. In Mark Lane the best English town households brought 38*s.* to 47*s.* per 280 pounds; best country households, 35*s.* to 36*s.*; Norfolk and Suffolk, 30*s.* to 33*s.*; American, per barrel, 24*s.* to 25*s.*; extra and double extra, 25*s.* to 26*s.* At Liverpool English and Irish superfines brought 35*s.* to 39*s.* per 280 pounds; ditto, extra, 40*s.* to 45*s.*; French, 37*s.* to 50*s.*; Trieste, 55*s.* to 62*s.*; Spanish, 41*s.* 3*d.* to 43*s.*; Chilian, 33*s.* 6*d.* to 36*s.* 6*d.*; Californian, 38*s.* to 40*s.*; American western and extra State, per barrel, 23*s.* to 25*s.*; Baltimore and Philadelphia, 22*s.* 6*d.* to 26*s.*; Ohio and extra, 23*s.* to 26*s.*; Canadian, 22*s.* to 27*s.* In Paris prices for consumption ranged from 35*s.* 3*d.* to 37*s.* 11*d.* per 280 pounds.

MAIZE.—At the close of the third week in September there was a light supply in London and an upward tendency of prices. White was quoted at 38*s.* to 48*s.*, yellow at 34*s.* to 37*s.*, per quarter. In Liverpool American ranged from 37*s.* to 42*s.* per 480 pounds; Galatz, 39*s.* 3*d.* to 39*s.* 6*d.*

